THE MODERATING EFFECT OF LEADER-MEMBER EXCHANGE ON THE RELATIONSHIP BETWEEN SAFETY MANAGEMENT PRACTICES AND SAFETY PERFORMANCE

By

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ABSTRACT

The present study investigated the relationship between safety management practices and safety performance of nurses in Hospital Pulau Pinang. It also examined the moderating effect of leader-member exchange on the relationship between safety management practices and safety performance. The safety management practices were management commitment, safety training, safety communication and feedback, employees' involvement, safety rules and procedures, and safety promotion policies. The questionnaire consisted of 50 items adapted from previous studies. The questionnaires were distributed to 295 Grade U29 permanent nurses in Hospital Pulau Pinang for data collection, and the data were analyzed using the partial least squares-structural equation modeling (PLS-SEM). The findings showed that management commitment and safety promotion policies positively and significantly affected safety compliance, but not safety participation. Furthermore, the results also supported that employees' involvement and safety rules and procedures were positively related to safety performance (safety participation and safety compliance). Finally, managerial and theoretical implications are discussed and recommendations are made for future researchers.

Keywords: safety management practices, leader-member exchange, safety performance, nurse, Hospital Pulau Pinang.

ABSTRAK

Kajian ini menyelidik hubungan antara amalan pengurusan dan prestasi keselamatan dalam kalangan jururawat di Hospital Pulau Pinang. Di samping itu, kajian ini turut meneliti kesan hubungan pemimpin-anggota dalam amalan pengurusan dan prestasi keselamatan. Amalan-amalan pengurusan terdiri daripada komitmen pihak pengurusan, latihan keselamatan, penglibatan pekerja, komunikasi dan maklum balas keselamatan, penglibatan pekerja, peraturan dan prosedur keselamatan serta polisi galakan keselamatan. Soal selidik terdiri daripada 50 item yang telah diadaptasi daripada kajian sebelumnya. Sebanyak 295 borang soal selidik telah diedarkan kepada jururawat tetap Gred U29 di Hospital Pulau Pinang. Keseluruhan soal selidik telah digunakan untuk analisis data dengan menggunakan pemodelan separa persamaan kuasa dua berstruktur (PLS-SEM). Dapatan kajian menunjukkan bahawa komitmen pihak pengurusan dan polisi galakan keselamatan mempunyai hubungan positif dan signifikan yang mempengaruhi kepatuhan keselamatan, tetapi tidak bagi penglibatan keselamatan. Selain itu, dapatan kajian juga menyokong penglibatan pekerja dan peraturan. Prosedur keselamatan pula mempunyai hubungan yang positif dengan prestasi keselamatan (kepatuhan keselamatan dan penglibatan keselamatan). Akhir sekali, implikasi pengurusan dan praktis telah dibincangkan beserta cadangan kepada penyelidik pada masa hadapan.

Kata Kunci: Amalan pengurusan, hubungan pemimpin-anggota, prestasi keselamatan, industri kesihatan

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CHAPTER ONE

INTRODUCTION

1.1 Background of Study

Nurses are healthcare professionals who have completed their studies in nursing in a recognized institution and obtained licenses from a nursing board to offer patients a range of nursing services. They have equipped themselves with professional knowledge and skills to provide the best care possible to their patients and also teach the patients how to take care of their own health.

Table 1.1. *Number of Nurses by State, Sector and Ratio of Nurse to Population, Malaysia as at 31 December, 2015*

NEGERI *State*	SEKTOR AWAM *Public Sector*			SEKTOR SWASTA[2] *Private Sector*[2]	JUMLAH *Total*	NISBAH JURURAWAT KEPADA PENDUDUK *Nurse to Population Ratio*
	KKM[1] *MoH*[1]	BUKAN KKM[2] *Non MoH*[2]	JUMLAH *Total*			
Perlis	856	14	870	19	889	1: 277
Kedah	4,542	0	4,542	1110	5,652	1: 367
Pulau Pinang	3,390	3	3,393	3924	7,317	1: 227
Perak	5,764	0	5,764	1836	7,600	1: 326
Selangor	8,095	88	8,183	8140	16,323	1: 360
W.P Kuala Lumpur	4,585	4,036	8,621	6374	14,995	1: 118
W.P Putrajaya	2,952	0	2,952	25	2,977	1: 30
W.P Labuan	230	0	230	13	243	1: 398
Negeri Sembilan	2,474	5	2,479	1278	3,757	1: 292
Melaka	2,068	4	2,072	1439	3,511	1: 249
Johor	6,420	21	6,441	2577	9,018	1: 394
Pahang	3,857	0	3,857	747	4,604	1: 353
Terengganu	2,772	0	2,772	283	3,055	1: 378
Kelantan	3,442	1,376	4,818	469	5,287	1: 325
Sabah	7,006	6	7,012	778	7,790	1: 455
Sarawak	5,563	21	5,584	1323	6,907	1: 382
MALAYSIA	**64,016**	**5,574**	**69,590**	**30,335**	**99,925**	**1: 305**

Source : Health Informatics Centre, MoH (2015)

Table 1.1 displays the nurse population ratio in Malaysia in 2015. Of the 99,925 nurses, 69,590 (69.65%) are employed in the public sector and the rest (30335/30.35%) in the private sector. Among the health care workers, nurses are the largest workforce in the health care industry (Ong & Kamaludin, 2015). By the year 2020, the number of nurses in Malaysia will reach 173,400 which is 1:200 nurse-to-patient staffing ratio. (Barnett, Namisvayam & Narudin, 2010).

Nurses play an important role to ensure patients' safety in the health care setting. To make sure patients receive a high quality of health care service, nurses perform numberless tasks which include monitoring clinical progression of patients, identifying patients' care process and recognizing weaknesses within the systems. Besides, nurses also work to avoid any near miss and error throughout the care service provided to patients (Tweedy, 2015). They are an integral part of the health care services and are responsible for delivering high quality patient care in most health care settings.

However, nurses are prone to occupational injuries and accidents due to their high risk nature of working activities. While saving the patient's life, they encounter various types of occupational hazards such as needlestick incidents, musculoskeletal injury exposure, chemical hazards, workplace violence exposure, and physical hazards (Eljedi, 2015). Thus, nurses are thought to be the largest group of health care workers who are at risk from these occupational hazards (Eljedi, 2015).

Occupational hazards refer to the work environment, source of activities or conditions with a potential to increase the risk of human injury or ill health (Elewa & Banan, 2016). Occupational hazards can be classified as biological and nonbiological hazards.

Nonbiological hazards include physical (slips, trips, falls), psychosocial (physical, psychosocial, sexual abuse, stress) and ergonomic hazards (musculoskeletal injuries). Biological hazards include cuts, direct contact with contaminated materials, blood-borne pathogens, wounds, air-borne diseases, infectious diseases and cross contamination from soiled materials (Ndejjo, Musinguzi, Yu, Buregyeya, Musoke, Wang, Halage, Whalen, Bazeyo, Williams & Ssempebwa, 2015). Various forms of disabilities can be caused by these occupational hazards and loss of manpower that can lead to decreased productivity, and it may lead to the inevitable death of workers, which eventually will lead to loss of skilled nursing personnel (Elewa & Banan, 2016).

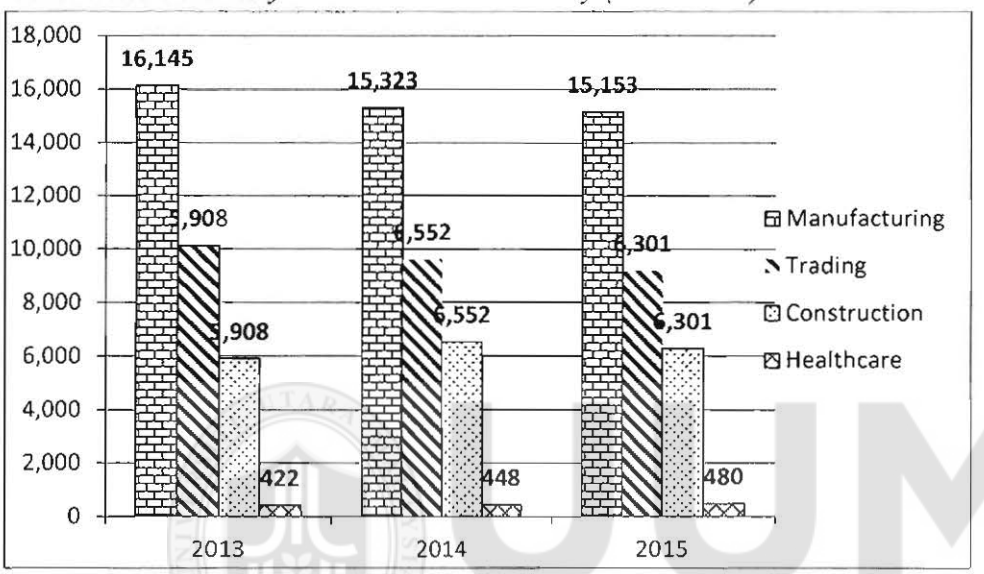
Occupational safety and health have become important issues nowadays because of the increased safety incidents which lead to an increased rate of morbidity and mortality of the exposed employees. The International Labour Organization (ILO) stated that over 300 million workers experience nonfatal occupational injuries of work-related illness annually and more than 2.3 million worker dies per year due to occupational hazards in the workplace (International Labour Organization, 2011).

Table 1.2 displays the statistics of occupational accidents classified according to sectors prepared by the Social Security Organization (SOSCO) from 2013 to 2015. The manufacturing sector stood with the highest number of occupational accidents from the year 2013 to 2015, while the health care sector had the lowest number of occupational accidents compared with the trading and the construction sectors. Besides, occupational accidents occurred in health care sector has increased from 2013 to 2015. In year 2015, 480 cases of occupational accidents occurred in health care sector, which shows an increase of 13.7% if compared with 2013 which is 422 cases. Hence, it is crucial to

identify the reasons and determine the solutions to reduce occupational accidents in the health care sector.

Table 1.2.

Occupational Accidents in the Malaysia Manufacturing Industry, Trading Industry, Construction Industry and Healthcare Industry (2013-2015)



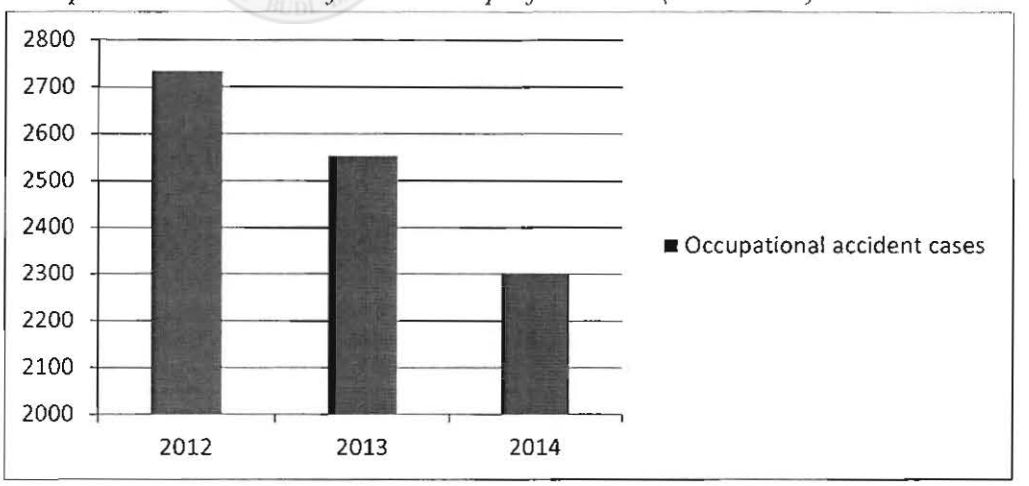
Source : Social Security Organization (SOSCO) Annual Report (2013-2015).

Of all the healthcare professionals, nurses represent the category most exposed to various risks, because they spend more time in direct and continuous contact with patients than other healthcare workers (Loro, Zeitoune, Guido, Silva, & Kolankiewicz, 2014). A study conducted by Gomaa, Tapp, Luckhaupt, Vanoli, Sarmiento, Raudabaugh, Nowlin & Sprigg (2015) stated that the rates of injury among healthcare workers in workplace had increase and the injury rates among nurses and nurses assistant had increased around two times. During the study period, Gomma et al. (2015) found that the injury rates for workplace violence, patient handling and slips, trips and falls were the highest among both nurses and nurse assistants. In Malaysia, the number of occupational accidents of

healthcare professionals reported by Annual Report Ministry of Health is 2200 cases for 2014 (Annual Report Ministry of Health, 2014). By 2014, the workplace injuries have fallen steadily over the past 3 years, from 2735 in 2012 to 2300 in 2014 (Annual Report Ministry of Health, 2014) and was probably a reflection of the active occupational safety and health practice among the healthcare professional. Furthermore, the statistics reported that approximately 1,394 cases of sharp injuries happened among the healthcare professional and 254 cases (18.2%) were sustained by nurses (Annual Report Ministry of Health, 2013). In fact, nurses have 4.27 times more chances of being exposed to occupational accidents compared with other health care professionals (Manzoor, Daud, Hashmi, Sardar, Babar, Rahman, & Malik, 2010). Table 1.3 presents the total number of accidents and occupational disease cases contributed by the healthcare professionals from 2012 till 2014.

Table 1.3

Occupational Accidents of healthcare professionals (2012-2014)



Khraisat, Juni, Rahman and Said (2014) conducted a systematic review on previous literature to provide an assessment of needlestick and sharp injuries among health care workers. Data were collected from research studies published from 2011 to 2014 and the respondents were health care workers in the hospitals. The researchers found that nurses had a higher needlestick and sharp injuries rate compared to other health care workers (Khraisat et al., 2014). In another study, Wong, Teo, and Kyaw (2010) also found that staff nurses were ranked top among the health care workers who suffered from ergonomic hazards. Similarly, a study conducted by Sandhya, Kumari, Gopisankar, and Sheela (2015) reported that the prevalence of low back pain was 74.2% among nurses in a tertiary care hospital. The consequences of occupational injuries and diseases such as economic, psychological and physical damages not only threatened the safety of health of nurses, but the lives of their families and patients can be negatively affected too (Osungbemiro, Adejumo, Akinbodewa, & Adelosoye, 2016). It is obvious that the after-effects caused by these workplace incidents have brought a lot of burdens socially and financially to the organization and the community. Hence, the current study was designed to determine the role of perceived workplace safety practices in workplace safety performance among the nurses in hospitals in order to prevent these tragic events from happening. The way to improve safety in the workplace is to apply safety performance in the workplace. Safety performance has been classified by Neal and Griffin (2000) into two types; one is safety compliance and the other is safety participation. Safety compliance is about the daily activities and routines that employees are required to do to ensure the safety of the workplace. There can be activities like wearing personal protective equipment during work and maintaining the standard of work procedures (Neal

and Griffin, 2006). It relates to the efforts that employees put into creating a safe working environment and safety procedures, rules and regulations which is established by organization must be followed by the employees to attain this safety goal. (Neal & Griffin., 2000; Inness, Turner, Barling, and Stride, 2010). Another concept in safety performance is safety participation, defined as safety behavior based on involving the workers in safety meetings, safety goal settings and preparation of recommendations for the organization in order to increase the safety level in the workplace (Neal & Griffin, 2000). Employees are encouraged to participate in safety activities. Activities like helping co-workers to resolve matters related to workplace safety are held, and they are invited to take part in safety meetings (Neal & Griffin, 2006; Lu & Yang, 2010).

The nurses were chosen as the subject in this study as they are exposed to a variety of occupational hazards in the hospital. By carrying out this particular study, the understanding of the importance of safety performance and nurses' exceptions towards safety practices in the workplace can be enhanced.

1.2 Problem Statement

Nowadays, workplace safety has become an important issue among the nurses in hospitals because of their increasing work-related injury and illness rate (Castro, Cabrera, Gee, Fujishiro & Tagalog, 2009; Gomaa, Tapp, Luckhaupt, Vanoli, Sarmiento, Raudabaugh, Nowlin & Sprigg, 2015). Thus, an interest regarding the safety issue among nurses has grown to determine ways and solutions for this particular issue. Bowander (1987) pointed out three approaches to explain the causes of accidents in the workplace. These three approaches are system perspective, technological perspective, and

management perspective. System perspective argues the absence or failures of the management system's approach to workplace safety which eventually leads to occupational accidents. (Shigeru, 2014; Noorul, Mansor, and Abdullah, 2012; Cooper, Phillips, Sutherland, & Makin, 1994; Carayon, Hancock, Leveson, Noy, Sznelwar, & Hootegem, 2015). The technological perspective argues that technological errors present in the workplace are the leading cause of the occupational accidents. (Bowander, 1987; Vinodkumar & Bhasi, 2010).

However, the management perspective demonstrates the workplace accidents in a different way from the system perspective and the technological perspective. The management perspective reveals that human error is the most leading cause of workplace accidents (Khdair, Shamsudin, & Subramaniam, 2011; Saat, Subramaniam, & Shamsudin, 2016). Hence, the likelihood of occupational injury can be reduced by reducing the errors of the employees. Based on previous studies, most of the occupational injuries resulting from unsafe behavior of employees (Gyekye, 2010; Thompson & Luthans, 1990). Besides, a study conducted by Ali, Abdullah and Subramaniam (2009) proved that management perspective has the capability to reduce occupational accidents and plays a significant role in safety performance. Thus, the present study sought to employ the management perspective to determine the workplace safety performance among the nurses in the hospitals.

Hospital is among the highly important and sensitive work environment since the performance of employees in its workplace is associated with the live of thousands of people. Some studies have reported lacks of workplace safety in the hospital (Leiss, 2014; Manyisa, & Aswegen, 2017; Senthil, Anandh, Jayachandran, Thangavel, Josephin,

Yamini, & Kalpana, 2014). The ocupational diseases in the hospital will bring a number of critical impacts on the hospital employees. These include biological, physical, ergonomic chemical and psycho-social health risk to the employees (Ulutaşdemir, Balsak, Berhuni, Özdemir, & Ataşalan, 2015). Furthermore, the occupational health and safety risk may bring the adverse effect to the management of hospitals and the occupational hazards can have harmful effects on the hospital employees. The impact of risks may also weaken the quality of hospital care for the patients. Ensuring the patient safety and providing the highest quality of hospital care is the major mission for the hospital. Patients go to a hospital and hopeful that the hospital can provide a professional treatment while the occupational health and safety risk can affect the patient care and arise untrustworthy from the patients to the hospital.

The safety management practices in hospitals is effective on some issues such as medication errors, nurse back injuries, urinary tract infections, patient satisafaction, patients perception of the responsiveness of nurses and nurse satisfaction (Hofmann et al, 2006). Many scholars believe that various dimensions of safety management practices have significant effects on safety performance (Vinodkumar & Bhasi, 2010; Vredenburgh, 2002; Geldart, Smith, Shannon, & Lohfeld, 2010; Khoo, Lilis, & Mui Hung, 2011). A study conducted by Vinodkumar and Bhasi (2010) stated that some methods can be used to improve the capability of employees to tackle occupational accidents in the workplace and improve their safety performance. These methods include engagement of management in safety activities, providing safety training, explaining the safety rules and procedures, safety promotion and policies, involvement of employees, and

communicating and getting feedback from employees. These six dimensions of safety management practices were chosen for this study.

Khoo, Lilis and Mui Hung (2011) studied the impact of safety management practices on safety performance in NCE, Malaysia. The result of the study showed a positive relationship between safety management practices and safety performance of employees. The results of this study also suggested that safety management practices are a necessity in the workplace. Moreover, Vredenburgh (2002) highlighted a significant relationship between safety management practices and reduced injury rates. He stated that safety management practices are important factors that significantly affect the occurrence of workplace accidents. Besides, the relationship between safety management practices and safety performance has been studied in other sectors, such as construction, manufacturing, and oil and gas (Khdair, et al., 2011; Saat, et al., 2016; Razuri, Alarcon, & Diethelm, 2007; Tucker & Turner, 2011). However, the findings obtained from previous studies are contradictory or inconclusive, as such an empirical investigation on this relationship would be worthwhile if it is carried out in the health care sector to minimize the gap in the existing knowledge.

Next, it is necessary for the introduction of moderators and mediators in a study considering the inconclusiveness regarding the relationship between safety management practices and safety performance. A moderator is a variable that has the ability to influence the direction or strengthen/weaken the relationship between independent variables and dependent variables. As for a mediator, it is an intervening variable that explains how or why the relationship between independent variables and dependent variables occur (Baron & Kenny, 1986; Sekaran & Bougie, 2013; Cooper, Russel, &

Frone, 1990). Furthermore, Antoncic and Hisrich, (2004) reported that by applying variables such as mediators and moderators, would enhance our understanding of the relationship between independent variables and dependent variables. Other studies (Zohar, 2010; Baron & Kenny, 1986) suggested that more variables should be applied to moderate organizational factors that can affect the independent variables. Moreover, Barry and Kenny (1986) also advised that when there are inconsistent findings from previous studies, it is necessary to introduce a moderator. Hence, a moderator variable was chosen in this study to moderate the relationship between safety management practices and safety performance.

This study introduced the concept of leader-member exchange (LMX) as a moderator to moderate the relationship between safety management practices and safety performance. LMX demonstrated that a strong bonding between supervisors and subordinates affect the safety outcome of employees (Gerstner & Day, 1997). A previous study found that the leader-member exchange is a variable that can significantly affect safety performance (Zhou & Jiang, 2015). Furthermore, Hofmann and Morgeson (1999) revealed that high levels of leader-member exchange can lead to less accident involvement and fewer safety-related incidents. These studies indicated that leader-member exchange is a determining variable to be considered when addressing the issue of workplace safety. However, available researches in investigating the role of leader-member exchange in moderating the relationship between safety management practices and safety performance are limited, especially in the health care settings in Malaysia. Moreover, previous studies show that researchers mostly focus on the role of transformational and transactional leadership styles in their investigation of the influence of leadership between safety

management practices and safety performance (Lievens & Vlerick, 2013; Mullen & Kelloway, 2009; Inness, et al., 2010). Based on the gap above, the leader-member exchange was chosen for this study to enhance our understanding of leader-member exchange in the implementation of procedures to improve safety performance.

Two critical criteria of safety behavior that workers need in the workplace are safety compliance and safety participation. By definition, safety participation is "the behaviors that may not directly contribute to work safety, but they do help to develop an environment that supports safety such as voluntary safety activities or attending safety meetings" (Neal & Griffin, 2000). Safety compliance, according to Neal and Griffin, (2000), is "the core safety activities that need to be carried out by individuals to maintain workplace safety". In other words, safety compliance is the action of an employee in protecting one's safety by complying with safety rules and procedures and fully utilize the protective equipment which is prepared by the organization, while safety participation is the involvement of employees in the process of determining safety policies, and committee members themselves thriving to create a safer workplace. Therefore, safety behavior among the nurses in hospitals must be addressed and monitored in order to increase the workplace's safety and prevent any occupational accidents from occurring.

The underpinning theory of this study was social exchange theory. The underlying process of the social exchange theory is relying on the norm of reciprocity (Gouldner, 1960). The social exchange theory indicates that the employees consider that the organization takes up the responsibility for their well-being, they receive some benefits from the organization, and they have an obligation to reciprocate by engaging in positive behaviors that benefit the organization (Hofmann & Morgeson, 1999; Emerson, 1981;

Settoon, Bennett, & Liden, 1996). Additionally, employees and supervisors' relationship can be explained by social exchange theory and it can be recognized as leader-member exchange (LMX). A supervisor's involvement and attention on employees' safety and well-being are believed to be a motivation for them to balance the exchange by committing themselves to safety behavior. According to Graen and Scandura (1987), the LMX relationship based on social exchange, whereby each must offer something the other party deems valuable and each party must see the exchange as reasonable equitable or fair.

Previous studies indicated that safety management practices are associated with positive safety performance . However, studies evaluating the moderating effect of leader-member exchange between safety management practices and safety performance in the context of the health care sector are still few and far between. Thus, in this study, leader-member exchange is examined as a moderator of the relationship between safety management practices and safety performance among nurses in the hospitals in order to fill the existing gaps in the safety performance literature.

1.3 Research Questions

Three research questions have been developed from the discussion above. They are:

1. What is the level of safety performance and level of perception on the safety management practices among nurses in hospital?
2. Is there any relationship between safety management practices (i.e. management commitment, safety training, employee involvement, safety communication and

feedback, safety rules and procedures and safety promotion policies) and safety performance?

3. Does leader-member exchange moderate the effect of safety management practices (i.e. management commitment, safety training, employee involvement, safety communication and feedback, safety rules and procedures and safety promotion policies) on safety performance?

1.4 Research Objectives

The study aimed to find out the following:

1. To identify the level of safety performance and level of perception on the safety management practices among nurses in hospital.

2. To identify the relationship between safety management practices (i.e. management commitment, safety training, employee involvement, safety communication and feedback, safety rules and procedures and safety promotion policies) and safety performance.

3. To examine the moderating role of leader-member exchange on the relationship between safety management practices (i.e. management commitment, safety training, employee involvement, safety communication and feedback, safety rules and procedures and safety promotion policies) and safety performance.

1.5 Significance of the Study

The purpose of this study was to explore the role of nursing leadership style in influencing safety management practices and safety performance. The finding of this study is expected to bring contributions to the field of safety performance theoretically and practically.

At the theoretical level, there is a lack of studies on applying the leader-member exchange (LMX) perspective to safety management practices and safety performance in the health care industry. This study attempted to determine the interaction of safety management practices, leader-member exchange (LMX) and safety performance in the health care industry in Malaysia. This study adds empirical evidence to the effect of the power of leader-member exchange (LMX) between safety management practices and safety performance in Malaysian public hospitals. The study also helps expand the boundary of knowledge by applying the social exchange theory for understanding the predictors of safety performance.

At the practical level, this study has the potential to impact nursing practice by providing empirical evidence on how supervisors influence the outcomes of safety. For example, nurse managers will be able to establish a policy guideline for supervisor-subordinates relationship. In addition, this study could help nurse managers to understand the importance of safety management practices towards improving safety performance. This study could also help nurse managers to know how to improve safety and reduce adverse events in the workplace. Finally, the outcome of this study could contribute to academic reference for future researchers and provide quantitative data to provide a benchmark for supervisors in the health care setting in designing and implementing measures to improve

safety performance by considering the influence of leader-member exchange (LMX) on safety management practices and safety performance.

1.6 Scope of the Study

Prior to the study, official letters requesting co-operation were sent out to the government hospitals in Northern Region of Peninsular Malaysia, but only one hospital (Hospital Pulau Pinang) replied and agreed to participate in this study. The researcher sent reminder letters to the other hospital in order to get their approval but none of them replied. Thus, Hospital Pulau Pinang was selected to draw the sample for this study due to time and financial constraints.

The study aimed to determine the relationship between safety management practices and safety performance and to examine the moderating role of leader-member exchange on the relationship between safety management practices and safety performance among nurses. In this study, safety management practices are measured by six components, namely management commitment, safety training, safety communication and feedback, employees' involvement, safety rules and procedures and safety promotion policies. The safety performance was selected as the dependent variable since there are some safety performance issues among nurses in the hospital. Leader-member exchange was assumed to be a moderator variable between safety management practices and safety performance. In order to conduct the study and achieve the aims of this research, a questionnaire was designed. The target respondents were 295 registered nurses that are currently working in Hospital Pualau Pinang, Malaysia.

The nurses were chosen for the following reasons. First, nurses are the largest group of health care providers who act as guardians to protect patients' safety. They thrive to provide the highest quality of patient care and with their expert knowledge and practical experience, establish a healthy and safe atmosphere for their patients (Alayed, Loof, & Johansson, 2014). Second, nurses in the health care setting are the most exposed health personnel to workplace hazards because nurses are more likely to perform bedside procedures than other health workers. (Wang, Fennie, Burgess, & Williams, 2003). At last, patient's safety is always a concern in health care setting and nurses serve as a communicators take an important part in guarantee their study. They are also involved in education, technology, management, and education to improve patients' safety and quality (Mwachofi, Walston, & Al-Omar, 2011).

The explanation in this study was provided on the use of SPSS 22.0 and SmartPLS 3.0 to carry out the data analysis which include: data screening, common method variance analysis and test for multicollinearly, descriptive statistics, reliability, measurement model and structural model analysis.

1.7 Organization of the Thesis

There are five (5) chapters will be discussed in this study. Chapter 1 discusses the general introduction such as the background of the study, problem statement, research objectives, research questions, significance of the study, scope of study and the organization of the study. Chapter 2 presents the literature review for relevant material in the study. Chapter 3 explains the method used for collecting data for the research. Chapter 4 discusses the research design used in this thesis. It presents results, discussion and analysis of the data

gathered for the study. Finally, Chapter 5 concludes and provides recommendations for future research.

1.8 Operational Definitions of the Study Variables

Safety Management Practices refers to "policies, procedures, activities and strategies followed or implemented by the management of an organization targeting safety of their employee" (Vinodkumar & Bhasi, 2010).

Management Commitment can be defined as "organization's management work together and take responsibilities to make safety and health a priority in the organization" (Shadab, Balaji & Narendra, 2016).

Safety Training describes "activities of instructing workers in hazard recognition and control measure, using available methods for protection (worker training), and educating workers in the field of occupational safety and health administration on how to deal with unforeseen problems or potential hazards in the workplace (worker education)" (Cohen and Colligen, 1998).

Safety Communication and Feedback refers to "the provision of information and data on the safety level of an organization to identify the degrees of risk that result in accidents at the workplace." (Bentley & Haslam, 2001).

Employees' Involvement refers to "a behavioral oriented technique that involves individuals or groups in the upward communication flow and decision making processes within the organization." (Vredenburgh, 2002).

Safety Rules and Procedures refers to "the degree to which an organization creates a clear mission, responsibilities, and goals, set up of standards of behavior for employees, and establish a safety system to correct worker's safety behavior." (Lu & Yang, 2011).

Safety Promotion Policies refers to "standards, rules and procedures connected with the compensation and allocation of benefits to employees for a job well done and motivation or anything given in recognition of effort or achievements" (Mashi, 2014).

Leader-Member Exchange (LMX) can be defined as "a unique exchange relationship that develops between a supervisor and their subordinate which will influence the subordinate's work behaviors and attitudes" (Breevaart, Bakker, Demerouti, & Heuvel, 2015).

Safety Performance refers to "actions or behaviors that individuals exhibit in almost all jobs to promote the health and safety of workers, clients and public and the environment" (Burke, Sarpy, Tesluk, & Smith-Crowe, 2002)

Safety Participation refers to "the worker's involvement in helping co-workers', promoting the safety program within the workplace, demonstrating initiative and putting endeavors into improving safety in the workplace" (Neal & Griffin, 2000).

Safety Compliance is defined as "the worker's adherence to safety procedures and carrying out work in a safe manner" (Neal & Griffin, 2000).

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the review of the literature on safety management practices and leader-member exchange, as well as how these factors affect safety performance. Previous literature reviews, concept of each variable, linkages between each variable, and the gap of the problem statement are illustrated in this chapter. The first section highlights the empirical studies on safety performance. The second section reviews the safety management practices and dimensions of safety management practices. The final section introduces leader-member exchange as the moderating variable, and the underpinning theory of the study is also presented in this chapter.

2.2 Concept of Safety Performance

Safety performance refers to two different approaches (Christian, Bradley, Wallace, & Burke, 2009; Shen, Ju, Koh, Rowlinson, & Bridge, 2017). First, it refers to the standard of measuring of the safety end result of an organization, for example, the statistic of workplace injury rate. Second, it refers to the standard of evaluating an individual's safety behavior. The former is the unpleasant result of an action, such as workplace accidents and injuries, while the latter can be used to predict accidents at the workplace. Traditionally, "after the loss" type of measurements like the cost due to incidents, the number of accidents and the estimation of the injury rate are conventional measures used to measure safety performance (Grabowski, Ayyalasomayajula, Merrick, Harrald, &

Roberts, 2006). However, recently there has been a shift in safety measurement from the application of lagging indicators to leading indicators to predict safety performance (Shen et al., 2017). Niu, Leicht, and Rowlinson (2016) revealed that leading indicators are used to determine the effectiveness level of the safety process while lagging indicators focus on the end result of the safety processes, procedures, and policies such as telling the public about how many people get hurt at the workplace and how badly. Unlike lagging safety indicators, leading safety indicators can be served as a measurement to identify trends in future safety performance and hence improve safety performance by managing positive safety behaviors (Hale, 2009).

Numerous studies have employed accident statistics for safety performance in organizations (Sawacha, Naoum, & Fong, 1999; Akson & Hadikusumo, 2007; Clarke, 2006). According to Burke, Sarpy, Tesluk, and Smith-Crowe (2002), safety performance can be explained as "behaviors and act someone manifested in work that help in promoting safety and health of workers in the workplace". The improvements of safety performance at the workplace have the potential to lower the accident rate and increase its resistance. On the contrary, poor safety performance in an organization can bring adverse effects on the working environment and subsequently increase the rate of occupational injuries and illness.

In order to keep safety performance to a certain standard and have improvement, safety factor items should be conducted consistently. Wu, Chen, and Lu, (2008) in their study revealed that safety performance is a subset of the total performance of an organization. They also identified that safety equipment and measures, safety training practice, safety organization and management, safety training and evaluation, accident investigations and

accident statistic are the safety factors that can influence workplace safety performance in an organization.

From the above literature review, safety performance is concluded as an important key to develop a safer workplace and thus workplace injuries and accidents can be reduced.

2.2.1 Empirical Studies on Safety Performance

Neal and Griffin (2000) built a model of safety performance based on the theories of job performance proposed by Borman and Motowidlo (1993) while Campbell, McCloy, Oppler, and Sager (1993) differentiated between antecedents of performance, determinants of performance and components. According to Neal and Griffin (2000), the components of performance indicated the employee's behavior at work. Safety participation describes the behavior of individuals that contribute to workplace safety indirectly. They attempt to establish a safe workplace by creating a safe workplace environment such as participating in safety meetings or involving activities related to safety. Safety compliance, according to Neal and Griffin, (2000) is "the core safety activities that need to be carried out by individuals to maintain workplace safety. In short, safety compliance is the degree that employees devote themselves to safety rules, regulations and procedures of an organization, while safety participation means individuals carrying out activities to establish safety policies and putting more efforts in improving the safety climate in an organization.

In this section, empirical studies on safety performance are reviewed with safety compliance and safety participation, which are widely used to measure safety performance at the workplace (Smith and Dejoy, 2014; Neal & Griffin, 2006;

Vinodkumar and Bhasi, 2010; Lu & Yang, 2010; Neal & Griffin, 2002; Pedersen & Kines, 2011).

Safety compliance and safety participation have been employed by previous researchers to measure safety performance. For example, A study conducted by Smith and Dejoy (2014) to examine the relationship between safety climate and safety performance (safety compliance and safety participation) of 398 professional firefighters in the southeastern USA. This study found a significant relationship between safety climate and safety compliance and safety participation. In addition, the result also supported the importance of safety compliance and safety participation involvement in the reduction of occupational accidents.

A study was conducted by Vinodkumar and Bhasi (2010) on employees' perception of six safety management and self-reported safety knowledge, safety motivation, safety compliance, and safety participation. In the study, data were collected from 1566 workers from 8 major chemical factories in Kerala, India by using survey forms. The result indicated that safety knowledge and safety motivation had a positive relationship with safety compliance and safety participation.

Neal et al. (2000) conducted a study to examine the relationship between safety climate and safety performance (safety participation and safety compliance) in Australia. Data were collected from 326 employees in three Australian manufacturing organizations. The finding suggested that safety climate had a positive significant relationship with safety compliance and safety participation. Similarly, Pedersen and Kines (2011) conducted a study to examine the relationship between safety motivation and safety performance

(safety compliance and safety participation) in Denmark. The study used survey data collected from 532 workers of 22 small, medium and large metal or wood manufacturing enterprises. The result indicated that safety motivation positively affected safety performance.

A study was conducted by Ali, Abdullah, and Subramaniam (2009) to examine the relationship between management practices and injury rates in 58 Malaysian companies in the industrial sector. The finding showed that only feedback and employee participation were significant predictors of injury rates.

A study was conducted by Razuri, et al., (2007) to identify factors that significantly influenced safety performance in Chilean construction companies. During the study, data from 60 construction sites in Chile were collected. The study showed that safety performance was influenced by 14 factors, especially, project planning, participative practices and the orientation and specialized safety training for management. Furthermore, the study also revealed that the number of best safety practices implemented had a positive correlation with the project's injury rate.

Khoo, Lilis, and Mui Hung (2011) studied the effect of safety management practices on safety performance in Malaysia. The findings suggested a positive relationship between safety management practices and safety performance of employees and the need for safety management practices in the workforce.

Mashi, Subramaniam, & Johari, (2018).examined the moderating effects of consideration of future safety on management commitment and safety communication and feedback among 229 nurses in Abjua's secondary health care facilties in Nigeria The result provide

strong evidence that that management commitment was positively and significantly related with safety compliance and safety participation, while safety communication and feedback was positively related with safety participation.

A study by Singer et al (2009) examined the relationship between safety climate and safety performance in the United States. The researchers utilized a self-administered questionnaire procedure for collecting data from senior managers and frontline personnel of 91 hospitals. The result revealed that organization safety climate was positively related to the safety performance in hospitals. Another study on safety performance has been extended to construction sites in Iraq (Elaf, & Meltem, 2017). They conducted a study on the relationship between safety climate and safety performance among 190 constructions workers in Iraq. They concluded that most of the safety climate factors have a significant effect on the safety performance success (Elaf, & Meltem, 2017).

Morever, Cigularov, Chen and Rosecrance (2010) conducted a study to explore the role of communication in safety performance. The sample consists of 235 employees in construction firms Midwest and Northwest regions in the United States. The result of data analysis indicated a significant positive relationship between safety communication, error climate and safety behavior.

Cheyne et al. (1998) carried out a study to measure the role of safety climate in the prediction of safety activity level. They disclosed that safety communication has a significant and positive association with safety performance, including safety compliance and safety participation. Also, Griffin and Neal (2000) have supported the positive relationship between safety communication and safety behavior. Furthermore, the finding

of We et al. (2008) among samples from four universities in Taiwan depicts that there is a direct positive relationship between safety communication and safety performance.

Furthermore, a study was conducted by Inness, Turner, Barling, and Stride (2010) to examine the relationship between transformational leadership and safety performance (safety compliance and safety participation) among 150 employees with 2 jobs. The study found a significant relationship between transformational leadership and safety participation, but no significance with safety compliance. Similarly, in favor of generating more data related to safety in the construction sector, a study was conducted by Schutte,(2010) to analyze how safety climate, transformational leadership and safety performance related to each other. A study was carried out in Netherlands where three large construction companies were selected as study site and data were collected from 77 participants. This study indicated a significant positive relationship between transformational leadership and safety participation, while transformational leadership has no relationship with safety compliance.

Additionally, Fernández-Muñiz, Montes-Peón, & Vázquez-Ordás, (2014) implement a study to examine the role of safety leadership and of the proactive risk management on occupational safety performance from 188 organisations located in Spain. Structural equation modeling was employed to test the model and the result revealed that safety performance of the firms was influenced directly by safety leadership (Fernández-Muñiz et al., 2014)

In summary, the aforementioned studies found that safety performance positively related to accidents and injuries in the workplace. Therefore, this study intended to examine

safety management practices and safety performance in hospitals in order to increase the level of safety and health among the employees.

2.3 The Role of Safety Management Practices in Safety Performance

Safety management practices are one of the safety performance indicators at the workplace. In order to understand the relationship between safety performance and safety management practices, a few studies have been performed (Ali et al., 2009; Dorji & Hadikusumo, 2006; Vinodkumar & Bhasi, 2010; Vredenburgh, 2002; Geldart, et al., 2010). Safety management practices have been defined as the most effective methods or techniques for achieving organizational goals through the optimum utilization of the organization's resources (Dorji et al., 2006). The practical and theoretical suggestions for management practices on workplace safety are formulated from its potential in predicting safety results as safety performance.

As knowing safety in the workplace is an important matter, this study was conducted to investigate the influences of six safety management practices. This will help employers to understand the significance of safety performance in creating a safe workplace and enhancing employees' perception of workplace safety practices.

2.3.1 Management Commitment

One of the important keys to improving organizational safety performance is the engagement of supervisors in safety management practice which is also known as management commitment (Ali et al., 2009). Management commitment is defined as "the extent to which management is perceived to place a high priority on safety and communicate and act on safety issues effectively" (Neal & Griffin, 2004). According to

Peyton and Rubio (1991) , engagement and support of a supervisor are essential for safety efforts to achieve success. Basically, management commitment is of major importance in organizations to improve and enhance workplace attitudes and behavior (Porter, Crampon & Smith, 1976; Koch & Steers, 1979).

Previous studies have found that employee perception of management commitment had a strong correlation to safety performance (Zohar, 2000; Barling, 2001; Parker, Axtell, & Turner, 2011). For instance, Geldart et al. (2010) conducted a study in Canada among manufacturing firms to examine workplace safety and health and organization practices.

The finding of this study showed that management commitment has a direct impact on injury occurrence in the workplace. Similarly, a study conducted by Vinodkumar and Bhasi (2010) in Kerala, found that the crucial key to improving the employees' safety performance is a good safety management practices.

In conclusion, management commitment has been identified as one of the important factors contribute to the workplace accident and decrease the likelihood of exposure to the occupational accident and injuries' risks among the workers.

2.3.2 Safety Training

Safety training contributes significantly to the reduction of accident rates. According to Peyton et al. (1991), safety training is one of the important elements of an effective safety program. The organization has the responsibility to ensure the employees learn about the company's safety procedures and policies and understand the occupational risks at the workplace by providing programs and talks related to safety practices. Effective safety training is important to teach the employees to improve their skills, safety behavior and

knowledge. Employees will be able to detect workplace risks if they are well equipped with knowledge and skill and this will enable them to avoid safety risks and hence occupational injury rate can be reduced (Fernandez-Muniz, Montes-Peon, & Vazquez-Ordas, 2007). An organization with good safety training has lower accident rates than another organization which does not provide safety training (Zohar, 1980). Therefore, a safety training program plays a significant role in safety enhancement in the workplace and it is also essential to raise the level of employees' safety awareness (Ghani, Abdul Hamid, Mohd Zain, Abdul Rahim, Mohamad Kamr, & Abdul Rahman, 2010).

Previous studies have showed that safety training had a significant positive relationship with safety performance and this relationship can lower occupational injury rate and increase the level of employee safety awareness at the workplace (Huang, Ho, Smith, & Chen, 2006; Vinodkumar and Bhasi, 2010; Sgourou, Katsakiori, Goutsos and Manatakis, 2010). For instance, Kamarrudin et al. (2009) conducted a study in the semiconductor industry in Negeri Sembilan to investigate the relationship between safety training and safety performance. The findings showed a positive result indicating that these two variables are related to each other significantly. 86.7% of the respondents reported that they have increased their awareness successfully and understand workplace safety. Similarly, a study by Vinodkumar and Bhasi (2010) indicated that safety training successfully increased safety performance and reduced occupational injury rate.

In conclusion, numerous previous studies indicated a positive relationship between safety training and safety performance. The effectiveness on safety training can help in improving safety performance and significantly reduce workplace accidents.

2.3.3 Safety Communication and Feedback

Safety communication and feedback among employees are crucial aspects of effective safety management practices to enhance the safety performance of an organization. The extent of risk due to workplace accidents can be determined by the supervisor by communicating with the employees and receiving feedback from them (Kletz, 1993). Furthermore, management can identify workplace hazards and correct the errors at work with the efficient communication and feedback system within the organization (Vredenburgh, 2002; Pandey & Garnett, 2006). The supervisor has the responsibility to inform employees of the health and safety practices and policies and make sure employees receive complete information on this topic (Goetsch, 2011). Studies conducted by Cohen (1977), Mearns, Whitaker, and Flin, (2003), Arboleda, Morrow, Crum, and Shelley, (2003) and Vredenburgh (2002) showed that there are a few factors that can affect an organization's safety performance, and effective communication is one of the critical factors.

Previous studies have revealed the relationship between safety communication and feedback, and safety performance (Mearns et al., 2003; Ali et al., 2009; Cheyne, Cox, Oliver, & Tomas, 1998; Cigularov, Chen & Rosecrance, 2010; Probst & Estrada. 2010; Neal et al., 2000). For instance, in examining the effect of communication on safety performance between supervisors and team members in the manufacturing industry, Hofmann and Morgeson (2003) found a positive and significant result in reducing accident rates. Similarly, Ali et al. (2009) revealed that communication and feedback had a positive significant influence on reducing the injury rate in Malaysia's industrial sector.

In conclusion, safety communication and feedback was found to be a mechanism in improving safety performance, lower accident rates and recognize potential safety issues in the workplace.

2.3.4 Employees' Involvement

Employees' involvement refers to the " behavioral-oriented technique that involves an individual or groups in the upward communication flow and the decision-making process within the organization" (Vredenburgh, 2002). No participation is a situation where the managers or supervisors make the decision without the participation of the employees while full participation is everyone in the organizations is involved in the process of decision-making. Moreover, employees who have working experience are capable enough to involve themselves in the improvement of workplace safety because they are the personnel who are close to their jobs and know the risks well (Vredenburgh, 2002). Employees can contribute to a safe workplace if they are approved by their supervisor to work on the workplace safety and health-related issues (Khairiah, 2008).

Studies carried out previously showed that employees' involvement and safety performance are related to each other positively (Clarke, 1982; Ali et al., 2009; Vinodkumar & Bhasi, 2010; Shannon, Walters, Lewchuk, Richardson, Moran, Haines, & Verma, 1996; Costella, Saurin, & Guimaraes, 2009). For instance, in a study conducted in Brazil, it was found that worker involvement in workplace safety issues was positively linked to preventing occupational accidents and injuries (Costella, Saurin, and Guimaraes, 2009). Similarly, a study conducted by Clarke (1982) explored the relationship between employees' involvement and safety performance in Canada. The results indicated that employees' involvement was significantly related to safety performance.

In conclusion, numerous studies have presented the existence of a link between employees' involvement and safety performance. The accidents at workplaces can be reduced if employees are allowed to take part in safety decisions.

2.3.5 Safety Rules and Procedures

According to Vinodkumar et al., (2010) employee compliance with safety rules and procedures is a significant safety management practice of an organization. Safety rules and procedures refer to the extent of an organization establishing the goal and purpose, constructing a series of work principles in conducting employees' manner at work and building a safety structure to guide employees' safety behaviors (Lu & Yang 2011). This factor emphasizes the action that can be done by employees to accomplish safety in the workplace. Therefore, the objectives of safety rules are to ensure employee safety compliance in the workplace.

Previous studies have showed the positive relationship between safety rules and procedures and safety performance (Cox & Cheyne, 2000; Mearns et al., 2003). For instance, Laurance (2005) conducted a survey on safety rules and regulations at 33 mines throughout Australia. This study intended to look for the ideas and recommendations of trained workers who worked in a mine field on safety rules and regulations. The study revealed that workplace accidents can be caused by a failure to comply with safety rules and regulations. Similarly, Mearns et al. (2003) conducted a study that stated a positive association between safety rules and procedures and safety performance in the oil and gas industry.

In conclusion, the aforementioned studies indicated a positive relationship between safety rules and procedures and safety performance. The safety performance can be improved when workers comply with workplace safety rules and procedures.

2.3.6 Safety Promotion Policies

According to Welander, Svanstrom, and Ekman (2004), safety promotion policies refer to the policies that guarantee to keep the safety conditions appropriately and make sure the safety level is achieved and maintained at an optimum level. The management creates and implements a number of strategies, including linking reward with safety performance in order to encourage the employees to work safely and not to expose themselves to occupational safety threats at the workplace (Subramaniam, Shamsudin, Zin, Ramalu, & Hassan, 2016). Moreover, Geldart et al., (2010) revealed that a few formal policies such as the statistics of injury rate, safety rewards, and career engagement support can help in reducing the workplace injury rate.

Vinodkumar and Bhasi (2011), found that safety promotional policies should be incorporated with other factors such as management commitment, safety training, safety communication and feedback, safety rules and procedures, employees' involvement and safety rules, and procedures. These factors will help the organizations to develop effective and efficient safety management systems, which will address the safety issues at the workplace (Paul & Maiti, 2008).

Previous studies have shown that safety promotion policies were effective in reducing injuries and accidents at work (Ali et al., 2009; Vinodkumar et al., 2010; Dejoy, Della, Vandenberg, & Wilson, 2010). For instance, a study done by Ali et al. (2009) found that

rewards had the capability to reduce occupational accident rates in the workplace. Similarly, another study that was conducted by Vinodkumar et al., (2010) found that safety promotion policies through rewards and incentives can influence the motivation of employees to reduce the chance of occupational accidents.

In conclusion, majority of studies showed positive associations between safety promotion polices and safety performance. A good safety promotion policies encourage and motive the employess to grant their best involvement to reduce occupational accidents and injuries.

2.4 Leadership Styles

Leadership is considered as an individual's ability to influence the behavior of other individuals toward the organization's goal (Tappen, Wess, & Withehead, 2004; Northouse; 2010). Valenzuela (2002) defined leadership as a person's ability to develop and communicate a vision to a group of people in order they may transform that vision into a reality. Furthermore, Stogdill (1957) affirmed that leadership is one of the individual behaviors to lead a team to achieve the organization's goal. In a similar vein, Edy (2010) defined a leader as a person who has the ability to lead a group to do something with him or her directing and monitoring to meet the target of the organization.

A good leader with effective leadership style would use their authority to bring changes in the employees' behavior and this might affect both the employees and the company positively. According to Jam, Akhtar, Haq, Rehman, and Hijazi (2010), effective leadership brings a positive impact on employees' effectiveness and lead the organization towards success.

Previous studies have investigated the direct linkages between leadership style and safety performance (Kivimaki, Kalimo, & Salminen, 1995; Wu et al., 2008; Charlton, 2000; Kelloway, Barling, & Loughlin, 2012; Clarke, 2013; Lievens et al., 2013). For instance, a study was conducted by Lievens et al. (2013) to examine the impact of leadership on the safety performance of nurses in a large Belgian hospital. Data were collected from 152 nurses by using self-administered questionnaires. The findings of the study showed that leadership can affect the safety performance of nurses positively. However, most of these studies focused on two styles of leadership: transactional and transformational leadership. Transformational leadership is the type of leadership that always encourages the employees to do well and to work towards achieving the objectives successfully (Bass, 1990). A transformational leader always gives motivation to his/her followers and helps them to build a greater sense of engagement and make sure they share the organizational goals and values together and know the importance of doing so (Burns, 1978).

On the other hand, transactional leadership is defined as the exchange between the leaders' and the followers' desired outcomes by fulfilling the leaders' interests and followers' expectations (Kuhnert & Lewis, 1986). A transactional leader is a leader who has the ability to recognize and describe the duties for their followers and work together with them to accomplish the duties through effective communication (Bass, 1990). In addition, transactional leaders make clear structures about what the needs for their subordinates are and they give rewards to those who follow the order (Bass, 1996). In essence, the transactional leadership style focuses on the accomplishment of the task and employee relationship in exchange for the desirable reward, while transformational

leadership behavior seeks to inspire and motivate the followers to perform better in the workplace with their own styles of self-interest.

Although there are many leadership styles, this study adopted the leader-member exchange to moderate the relationship between safety management practices and safety performance. Leader-member exchange (LMX) refers to "a set and outcome of dynamic and interactive exchanges that occur between leaders and members" (Henderson, Liden, Glibkowski, & Chaudhry, 2009). The leader-member exchange is differentiated from other leadership theories as it emphasizes a two-way communication between a supervisor and a subordinate. This is different from traditional theories that focus leadership on personal characteristics and behaviors of the leader; the LMX theory focuses on the quality of the supervisor-subordinate relationship (Gerstner et al., 1997). It is crucial to recognize the moderating effects on the relationship between safety management practices and safety performance. In previous research, researchers had examined several moderating roles, such as safety culture, safety knowledge, safety motivation, safety behavior, transformational leadership and transactional leadership. Thus, this study considered leader-member exchange as a potential moderator of the relationship between safety management practices and safety performance.

The quality of the LMX theory is measured by a four-dimension model of leader-member exchange (LMX), which involves affect, contribution, loyalty and professional respect (Liden, Sparrowe, & Wayne, 1997). The quality of the LMX theory ranges from low to high (Liden et al., 1997). The LMX theory indicates that employees' outcomes, such as work performance, job achievement and work engagement can be affected greatly if the subordinates have a good relationship with their supervisor (Laschinger, Purdy, & Almost,

2007; Bauer & Green., 2006; Liden et al., 1993, Gerstner et al., 1997). Subordinates in high quality exchange relationships may gain more empowerment, mentoring, information and other useful resources from their supervisor (Zhou, & Shi, 2014). In the study of Bauer et al., (2006), high quality relationship was noted in the supervisor who frequently discussed the employee's job accomplishments, work difficulty, employees' individual problems and the steps and solutions to raise employees' job effectiveness and efficiency. Besides, the supervisor was also willing to help employees to deal with difficult work tasks. In contrast, a lower quality relationship was noted in the supervisor who seldom discussed employees' effectiveness with subordinates and did not provide much help when the subordinates encountered difficulties in work. On the other hand, high level of LMX among subordinates could result in gaining more resources, growth opportunities, exchange of information and positive feedback from their supervisor to cope with the negative consequences that happen in their jobs while low levels of LMX limit the employees to gain the resources and they do not have any contact with their supervisors (Probst, Jiang, & Graso, 2016; Graen, & Uhl-Bein, 1995). Overall, a number of studies showed that subordinates with higher LMX with their supervisors are more likely to enjoy various benefits in the workplace.

The LMX model posits that leader's behavior is not necessarily consistent across all subordinates. Typically, a high quality LMX is established when a close relationship is built between supervisors and a small number of subordinates. In such a relationship, the supervisors and subordinates believe and support each other, and supervisors also communicate effectively and give rewards to subordinates formally and informally (Dienesch & Liden, 1986). Ilies, Nahrgang, and Morgeson (2007), conducted a meta-

analytic estimate of the relationship between the quality of exchanges (LMX) and citizenship behaviors. A sample of 50 employees was surveyed and the results showed a strong, positive relationship between leader-member exchange and citizen behaviors. Moreover, high quality LMX relationships were found to be more significantly related to individual-targeted behaviors than organizational-targeted behaviors.

Previous empirical studies have considered the leader-member exchange as a moderator between independent and dependent variables. For instance, Probst et al. (2016) examined the moderating effect of leadership-member exchange on the relationship between job insecurity and safety knowledge, reported accidents and physical health conditions among 212 employees in the US. The finding of this study showed that LMX relationship had a moderating effect on these variables. Furthermore, a study by Mariani, Curcuruto, Matic, Sciacovelli, & Toderi, (2017) implemented a study to investigate the moderating effects of leader-member exchange on the relationship between safety climate and proximal antecedents (motivation and knowledge) of safety performance constructs (compliance and participation). The study findings revealed that leader-member exchange positively moderate the relationship between safety climate and proximal antecedents.

On the other hand, Lee (2011) conducted a study to examined the moderating effect of leader-member exchange on the relationship between job demand (work load) and burnout (emotional exhaustion, cynicsm and professional efficacy). The result showed that found that leader-member exchange had a moderating effect between workload and cynicism. On a similar note, Lee, and Ji, (2018) examined the moderating effect of leader-member exchange on the relationship between emotional labor and burnout. Using a sample of 165 clinical nurses working in the general wards of two tertiary hospitals in

Seoul, South Korea, they (2018) found that LMX moderate the relationship the relationship between burnout and the two factors of emotional labor. Similarly, the study conducted by Turgut, Tokmak and Ates, (2016) showed that leader-member exchange has a significant interaction as a moderator between emotional labour and job satisfaciton

Moreover, Genuine and Palo, (2018) investigate the moderating effect of leader-member exchange between professional identify and innovate work behaviour. The data were collected from a survey of 844 staff nurses working in 6 multi private and charitable trust hospitals located in Mumbai, India. They revealed that leader-member exchange moderated the relationship between professional identity and innovate work behavior of nurses. Furthermore, a study conducted by Kartinli, Abaty, Gunay and Cangarli (2011) showed that the relationship of psychological contract violation and organizational citizen behavior was moderated by leader-member exchange.

In view of the above discussion, this study assumed that the relationship between safety management practices and safety performance might be moderated by the leader-member exchange.

2.5 Underpinning Theory

The research model examined in this study was underpinned by the social exchange theory. The social exchange theory and how it can be applied in this current study will be discussed in the following section.

2.5.1 Social Exchange Theory

The idea of social exchange theory has been used for a long period of time in explaining the reciprocal exchanges between employees and supervisors (Neal et al., 2006; Michael, Guo, Wiedenbeck, & Ray, 2006). This theory postulates that employees can develop exchange interactions with supervisors based upon reciprocal reinforcements (Emerson, 1972; Setton et al., 1996). This indicates that employees involve themselves in a continuing exchange relationship with their supervisor (Setton et al., 1996; Wayne, Shore, & Liden, 1997). Homans (1961) stated that social exchange as the exchange between two or more people, in either tangible or intangible form and related to rewards and cost. The basic principle of the social exchange theory is to establish a relationship between two parties by trust, loyalty and mutual commitments over a specific time (Cropanzano & Mictchell, 2005).

The social exchange theory can be explained thus: when employees believe that the organization cares about their welfare, it motivates them to act in a way that brings advantage to their organization as a repayment. The theory on the model of reciprocity is established from two main concepts. First, when a person helps another person, the second person should provide aid or assistance to the first as repayment. Second, people should not harm others who have provided help to them in the past (Gouldner, 1960; Blau, 1964). In short, this mutual relationship is formed when an individual provides some advantage to another individual. In return, the second individual must repay the first individual with other types of advantages or benefits.

Cropanzano and Mitchell (2005) stated that reciprocation is most important among various norms and rules established by the theory. The researchers explained that

individuals tend to reciprocate positively when they receive positive actions from the other people. In contrast, individuals will reciprocate negatively when other people do not care about them (Cook & Rice, 2006). The social exchange theory model, involves the exchange of benefits between the supervisor and the subordinates. For example, employee engagement and capability were demonstrated when the rewards system was established by the supervisor. In other words, when an employee receives expectations from his supervisor, he is likely to commit more to his supervisor and perform better than those who do not (Tsui, Pearce, Porter, & Tripoli, 1997; Hoffman, Morgeson, & Gerras, 2003; Aselage & Eisenberger, 2003).

The social exchange theory is one of the most extensively used theories in the leader-member exchange theory. LMX relationships are exclusive in the social exchange between supervisors and subordinates. The quality of the LMX relationship will become higher as these social exchanges increases, and in turn, a high quality leader-member exchange is established (Blau, 1965). Based on the LMX, theory, supervisors assign more important roles to subordinates in a high quality LMX relationship in the organization and these subordinates will receive more work benefits than other lower quality LMX group members. For example, a team member in a high quality relationship performs better and works more effectively. It is also reported that they are more satisfied with their jobs and the manager. For instance, when applying the original notion of reciprocity (Gouldener, 1960), if nurses perceive that they receive fine treatment in the workplace and they have a good relationship with their supervisor (LMX), the nurses are more likely to feel obligated to provide some return to the supervisor and it also benefits the organization, especially when the supervisor's goals are aligned with the organizational

goals (Cole, Schaninger, & Harris, 2007). Nurses are ready to possess high quality exchange relationships between their higher level managers and subordinates when the organization assures its employees of positive actions. Thus, the safety performance of nurses in the workplace can be enhanced.

In summary, the social exchange theory indicates that individuals try to gain equitable exchange of resources in the organization. Thus, employees tend to reciprocate to their organization when they gain some valuable things from their organization. In contrast, when they do not get anything from their organization, they may practice negative behaviors in the organization which might lead to occupational injuries. Therefore, the social exchange theory was used in this study as the underpinning theory as it could explain the relationship between safety management practices, leader-member exchange and safety performance.

2.6 Research Framework

The concept of the research framework is to explain the relationship between the variables in a research study (Sekaran, 2013). The research framework of this study was developed based on a number of previous literature reviews on the theories of safety management practices, leader-member exchange, and safety performance which were discussed in Chapter 2 of this thesis. Previous studies from other scholars have indicated that safety performance is associated with reduced work-related injuries and accidents (Kaufman, Cigularov, Chen, Hoffmeister, Gibbons, & Johnson, 2014; Christian, et al., 2009; Neal & Griffin, 2000; Zohar 2000; Wu, Lee, Shu, & Shu, 2010; Enshassi, Choudhry, Mayer, & Shoman, 2008; Clarke 2010; Smith & Dejoy, 2014).

This research is replicated from Vinodkumar and Bhasi (2010) who conducted a study on safety management practices and safety performance. Thus, the dependent variable for this study is safety management practices (management commitment, safety training, employees' involvement, safety communication and feedback, safety rules and procedures, and safety promotion policies). The dependent variable is safety performance (safety compliance and safety participation), while leader-member exchange serves as the moderator of the relationship between safety management practices and safety performance Below is the research framework to show the relationship of the variables.

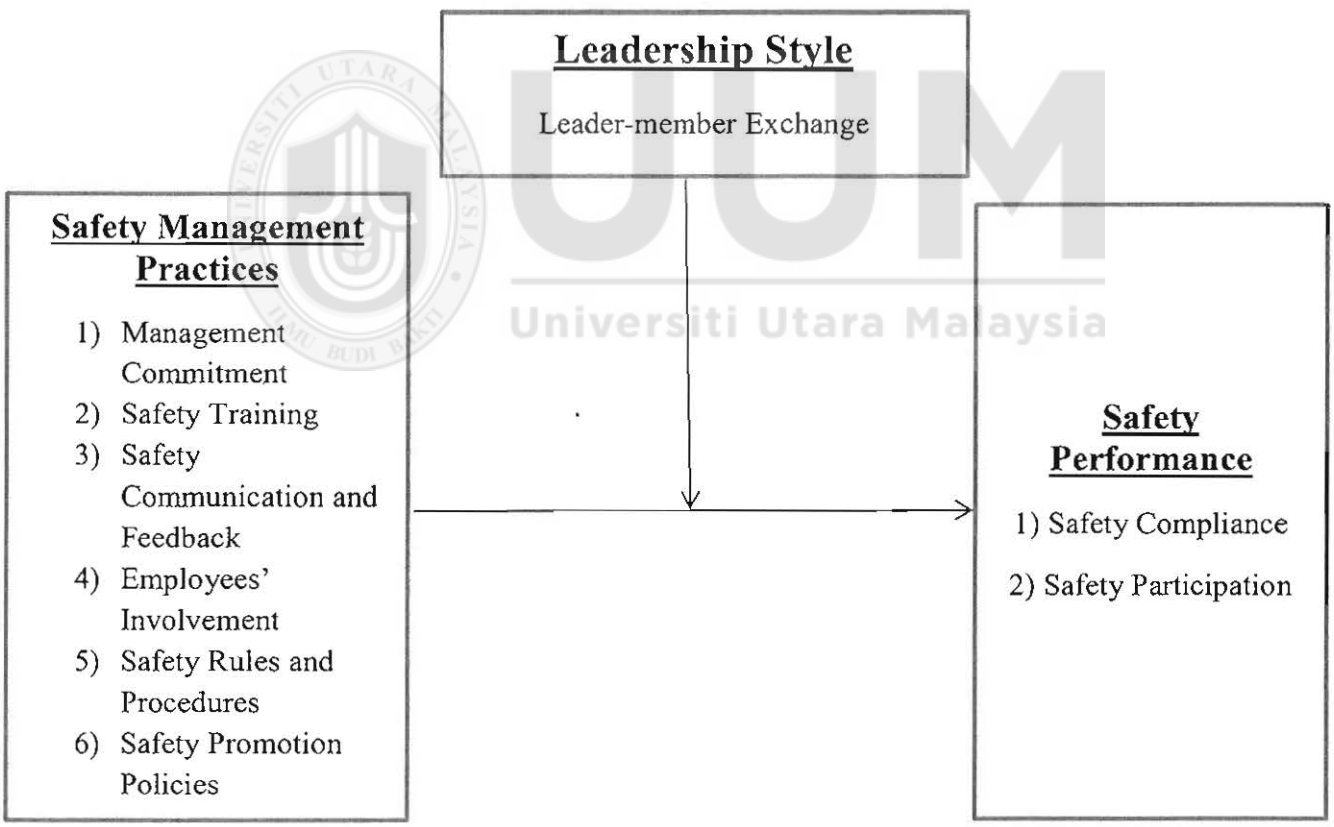


Figure 3.1. Research Framework of the present study.

Source : Adapted from Vinodkumar and Bhasi (2010).

Figure 3.1 displays a model of the relationship between safety management practices, leader-member exchange and safety performance. The figure 3.1 presents an overview of the variables that were tested in this study. The first independent variable is safety management practices which purportedly have six dimensions, namely management commitment, safety training, safety communication and feedback, employees' involvement, safety rules and procedures, and safety promotion policies. The moderating variable of this study was leader-member exchange. Furthermore, the dependent variable of this study was safety performance, which was measured by safety compliance and safety participation.

2.7 Hypothesis Development

The hypothesis was developed based on the previous literature review that discussed in Chapter 2 and in line with the research questions and objectives that have been outlined in Chapter 1.

2.7.1 Relationship between Safety Management Practices and Safety Performance

A number of studies have been done to demonstrate the existence of a positive relationship between safety management practices and safety performance (Sgourou, et al., 2010; Vredenburgh, 2002; Geldart, et al., 2010; Keffane & Delhomme, 2013; Mearns, et al., 2003). For example, studies by Razuri, et al., (2007) and Vredenburgh (2012) revealed that the improvement of safety performance could significantly reduce employee injury experience by implementing safety management practices at the workplace. Furthermore, Khoo, et al., (2011) conducted a study to investigate the relationship between safety management practices and safety performance in small and medium-sized

enterprises (SMEs) in Malaysia. The study found a significant positive relationship between safety management practices and the safety performance of employees. The results indicated that safety management practices have an impact on the level of workplace safety. Likewise, a study conducted by Vredenburgh (2002) reported that safety management practices were positively related to safety performance in the hospital setting.

Social exchange theory can be used to explain the correlation between safety performance and safety management practices. The social exchange theory proposed that when the supervisor is concerned about employees' welfare or offers rewards and training to the employees, they will tend to have some implicit obligations to perform their duties safely in the workplace. Previous studies identified that when management places emphasis on the employees' safety, they will repay their manager by adhering to the safety rules and procedures (Hofmann & Morgeson, 1999; Neal & Griffin, 2006).

Thus, the following hypotheses were developed:

H1: Safety management practices are positively related to safety performance.

H1a: Management commitment is positively related to safety compliance.

H1b: Safety training is positively related to safety compliance.

H1c: Safety communication and feedback are positively related to safety compliance.

H1d: Employees' involvement is positively related to safety compliance.

H1e: Safety rules and procedures are positively related to safety compliance.

H1f: Safety promotion policies are positively related to safety compliance.

H1g: Management commitment is positively related to safety participation.

H1h: Safety training is positively related to safety participation.

H1i: Safety communication and feedback are positively related to safety participation.

H1j: Employees' involvement is positively related to safety participation.

H1k: Safety rules and procedures are positively related to safety participation.

H1l: Safety promotion policies are positively related to safety participation.

2.7.2 Interaction Effect of Leadership Style

In this study, the moderating effect of leader-member exchange on the relationship between safety management practices and safety performance was investigated. The role of leaders in the workplace was established in the previous research literature (Mullen & Kelloway, 2009; Griffin & Hu, 2013; Zohar, 2000). The leader-member exchange theory can be defined as "dyadic relationships between supervisors and subordinates associated with desirable outcomes in the workplace, such as job performance and favorable job attitudes" (Erdogan, Bauer, & Walter, 2014). Previous literatures have stated that leadership- member exchange (LMX) has an impact on the extent of employees' desire to participate in safety-related activities (Clarke & Ward, 2006; Hofmann, et al., 2003). In this study, employees with high leader-member exchange were expected to be more engaged in safety compliance and participate in safety programs because they felt a sense of obligation and were motivated when management cared about workplace safety (Clark, Zickar, & Jex, 2013; Hofmann et al., 2003). The finding of Hofmann et al. (2003) showed

that high quality of leader-member exchange was positively associated with the safety performance of the members in the military unit.

Based on the above discussions, the following hypotheses were developed:

H2: Leadership styles moderate the relationship between safety management practices and safety performance.

H2a: Leader-member exchange moderates the relationship between management commitment and safety compliance.

H2b: Leader-member exchange moderates the relationship between safety training and safety compliance.

H2c: Leader-member exchange moderates the relationship between employees' involvement and safety compliance.

H2d: Leader-member exchange moderates the relationship between safety communication and feedback and safety compliance.

H2e: Leader-member exchange moderates the relationship between safety rules and procedures and safety compliance.

H2f: Leader-member exchange moderates the relationship between safety promotion policies and safety compliance.

H2g: Leader-member exchange moderates the relationship between management commitment and safety participation.

H2h: Leader-member exchange moderates the relationship between safety training and safety participation.

H2i: Leader-member exchange moderates the relationship between employees' involvement and safety participation.

H2j: Leader-member exchange moderates the relationship between safety communication and feedback and safety participation.

H2k: Leader-member exchange moderates the relationship between safety rules and procedures and safety participation.

H2l: Leader-member exchange moderates the relationship between safety promotion policies and safety participation.

2.8 Summary

In this chapter, previous literature was used to prove the relationship between safety management practices, leader-member exchange and safety performance. However, available researches in investigating the role of leader-member exchange in moderating the relationship between safety management practices and safety performance are limited, especially in the health care settings in Malaysia. Thus, in this study, leader-member exchange was examined as a moderator of the relationship between management practices and safety performance in the health care industry, to fill the existing gaps in the safety performance literature. Furthermore, the framework and the relevant hypotheses were developed based on previous research work done on the topic that analyzed the

relationships between safety management practices, leader-member exchange and safety performance.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter consists of methodological aspects used in the present research. To achieve the study objectives, this study discussed research design, population and sample size, unit of analysis, sampling technique, variables, and measurement. Apart from that, questionnaire design and data collection procedures are also presented in this chapter.

3.2 Research Design

This section is required in order to obtain specified and relevant information and data from the respondents and used for further analysed. In the study, Quantitative approach was used for data collection because quantitative approach is economical and more effective to investigate a large sample size than qualitative approach (Zawawi, 2007; Creswell, 2003). In addition, a cross-sectional design was undertaken for this research to achieve the stated research objectives which involve collecting the data at a given point in time(Hari, et al., 2007; De Vaus, 2001). The advantages of using cross-section design are cost effective, time efficient and require less number of respondents compared to longitudinal study (Creswell, 2009). Therefore, this study was performed quantitatively to investigate the relationship hypothesis between the variables of safety management practices and safety performance and the moderating effect of leader-member exchange on the said relationship among nurses of Hospital Pulau Pinang, Malaysia.

3.2. 1 Research Instrument

A questionnaire research method was employed in this study to collect data concerning the relationship between safety management practices, safety performance, and leader-member exchange. According to Rowley (2014), one of the most widely used methods in data collection is questionnaire because it is easier to make contact and gather relevant data from a large number of people in a short time. The questionnaire can also be used when trying to improve the understanding of any relationship between the variables (Rowley, 2014). In addition, a cross-sectional study was more suitable for this study rather than a longitudinal study due to limitation in terms of time and money (Saunders, Lewis, & Thornhill, 2009; Sekaran & Bougie, 2010; Punch, 2005; Zikmund, Babin, Carr, & Griffin, 2010)

3.2.2 Measurement of Variables

A total of 55 items in the questionnaire were adapted from the previous studies. The independent variable, "Safety Management Practices", the moderator variable "Leader-member exchange" and the dependent variable, "Safety Performance". Table 3.1 presents the dimensions, operational definition, items and sources from which the items were adapted and adopted.

Table 3.1

The Dimensions, Operational Definitions, Items and Sources

Variables	Operational Definition	Items	Sources
Management Commitment	The determination of the administration to pursue safety programs and to employ methods for the prevention of occupational accidents in the workplace (Arboleda et al., 2003)	1. Safety is given high priority of the management. 2. Safety rules and procedures are strictly followed by the management of the hospital. 3. Corrective action is always taken when the management of the hospital is told about unsafe practices. 4. In my hospital, managers/supervisors do not show interest in the safety of the workers. 5. Management of the hospital considers safety to be equally important as healthcare delivery. 6. Members of the management do not attend safety meetings. 7. I feel that management of the hospital is willing to compromise on safety for increasing healthcare delivery. 8. When near-miss accidents are reported, my	Cheyne et al., (1998); Cox & Cheyne (2000);

		management acts quickly to solve the problem. 9. My hospital provides sufficient personal protective equipment for the workers.	
Safety Training	The acquisition of knowledge and technical skills that enhance safety performance for the prevention of accidents and injuries at the workplace (HSE, 2010)	1. My hospital gives comprehensive training to the workers in hospital health and safety issues. 2. Newly recruits are trained adequately to learn safety rules and procedures. 3. Safety issues are given high priority in training programs. 4. I am not adequately trained to respond to emergency situations in my workplace 5. Management of the hospital encourages the workers to attend safety training programs. 6. Safety training given to me is adequate to enable me to assess hazards in workplace.	Vredenburgh (2002); Flin et al., (2000)
Employees' Involvement	The involvement of individuals or groups of employees in the	1. Management of the hospital always welcomes opinion from the workers before making final decisions on	Cox & Cheyne (2000); Vredenburgh (2002)

	conduct of safety programs and in the decision-making progress within the organization (Khan, 2010)	safety related matters. 2. My hospital has safety committees consisting of representatives of management and workers. 3. Management of the hospital promotes workers involvement in safety related matters. 4. Management of the hospital consults with workers regularly about hospital health and safety issues. 5. Workers do not sincerely participate in identifying safety problems.	
Safety Communication and Feedback	The provision of information and data on the safety level of an organization to identify the degrees of risk that result in accidents at the workplace (Bentley & Haslam, 2001)	1. My hospital doesn't have a hazard reporting system where employees can communicate hazard information before incidents occur. 2. Management of the hospital operates an open door policy on safety issues. 3. There is sufficient opportunity to discuss and deal with safety issues in meetings. 4. The target and goals for	Cox & Cheyne (2000); Vredenburgh (2002);

		safety performance in my hospital are not clear to the workers. 5. There is an open communications about safety issues in this hospital.	
Safety Rules and Procedures	The degree to which an organization creates a clear mission, responsibilities and goals, setting up of standard of behavior for employees, and the establishment of a safety system to correct workers' behavior (Lu & Yang, 2010)	1. The safety rules and procedures followed in my hospital are sufficient to prevent incidents occurring 2. The facilities in the safety department are not adequate to meet the needs of my hospital. 3. My supervisors and managers always try to enforce safety working procedures. 4. Safety inspections are carried out regularly. 5. The safety procedures and practices in this hospital are useful and effectives.	Colyn et al. (1995); Glendon & Litherland (2001)
Safety Promotion Policies	Policies that aim to ensure the presence and maintenance of conditions that are necessary to reach and sustain	1. In my hospital, safe behavior is considered as a positive factor for job promotions. 2. In my hospital, employees are rewarded for reporting hazards (thanked, cash or other rewards, recognition in	Vredenburgh (2002)

	an optimal level of safety (Welander, et al, 2004)	newsletter, etc.) 3. In my hospital, safety week celebration and other safety promotional activities arranged by the management are very effective in creating safety awareness among the workers. 4. There exists very healthy competition among the workers to find out and report unsafe condition and acts. 5. Our supervisor becomes very unhappy and angry when employees find out and report unsafe conditions and acts in our section.	
Leader-Member Exchange	The differentiated dyadic relationship that develops between a frontline leader and their individual staff member based on mutual trust, repect and obligation (Graen & Uhl-Bein,	1. My supervisor understands my problems and needs 2. My supervisor would be personally inclined to use his/her power to help me solve problems in my work. 3. I can count on my supervisor to "bail me out," even at his/ her own expense when I really need it 4. I have enough confidence in	Bauer & Green, (1996); Scandura & Graen (1984)

	1995)	my supervisor that I would defend and justify his/her decisions if he/she were not present to do so. 5. I usually know where I stand with my supervisor. 6. I would view my working relationship with my supervisor as extremely effective 7. I usually know how satisfied my supervisor is with me. 8. My supervisor recognizes my potential well.	
Safety Compliance	The employee adherence to safety procedures and the behavior exhibited in performing work safety (Neal et al., 2000)	1. I use all necessary safety equipment to do my job. 2. I carry out my work in a safe manner. 3. I follow correct safety rules and procedures while carrying out my job. 4. I ensure the highest levels of safety when I carry out my job. 5. Occasionally due to lack of time, I deviate from correct and safe work procedures. 6. Occasionally due to over familiarity with the job, I	Neal et al., (2000)

		deviate from correct and safe work procedures. 7. It is not always practical to follow all safety rules and procedures while doing a job	
Safety Participation	Employee behavior that does not directly contribute to an individual's personal safety, but helps to develop an environment that supports safety (Neal et al., 2002)	1. I help my co-workers when they are working under risky or hazardous conditions. 2. I always point out to the management if any safety related matters are noticed in my company 3. I put extra effort to improve the safety of the workplace. 4. I voluntarily carry out tasks or activities that help to improve workplace safety. 5. I encourage my co-workers to work safely.	Neal et al., (2000)

3.3 Population and Sample Size

According to Sekaran and Bougie (2013), sampling is known as a series of action to determine an adequate number of people or object as representative of the population. The purpose of sampling is to determine the population's characteristics based on the sample drawn from the population. In this study, the population was limited to the Grade U29 nurses working in a hospital. According to the Department of Human Resource in

the hospital, the total number of Grade U29 nurses working in the hospital was 1266 in 2016. In this study, the sample size was identified by using Krejcie and Morgan's (1970) table. Based on the table developed by Krejcie and Morgan (1970), 295 nurses were chosen to achieve a 95% confidence interval to generalize the 1266 nurses. The sample size of this study was determined by using Rober V. Krejcie Calculation (1970) method :

$$s = X^2 NP(1-P) \div d^2(N-1) + X^2 P(1-P)$$

s = required sample size

X^2= the table value for Chi square for 1 degree of freedom at the desired confidence level (3.841)

N = the population size

P = the population proportion (assume to be 0.50 for maximum sample size)

d = the degree of accuracy as a proportion (.50)

Each element in the population, such as work status, work experience, and gender was used to make sure that the sampling was in the least of bias and every subject in this study had the chance to be selected.

Table 3.2

The Total Number of Departments in the Hospital Pulau Pinang and the Number of Grade U29 Nurses

No.	Department	Number of Grade U29 nurses
1	Accident & Emergency Department (A&E) and Outpatient Department (OPD)	55
2	Inpatient Department	70
3	General Medicine Department	193
4	General Surgery Department	145
5	Obstetrics and Gynaecology (O&G) Department	121
6	Pediatrics Department	98
7	Orthopedic Department	70
8	Anesthesia Department	178
9	Ophthalmology (Eye) Department	25
10	Otorhinolaryngology (Ear, Nose and Throat) Department	13
11	Dermatology (Skin) Department	6
12	Neurology (Nerve) Department	17
13	Nephrology Department	24
14	Neurosurgery Department	30
15	Urology Department	3
16	Plastic Surgery Department	16
17	Cardiothoracic Surgery	136

18	Cardiology Department	35
19	Respiratory Department	7
20	Psychiatric Department	24
	Total	**1266**

Source: Human Resource Department, Hospital (2016).

A priori power analysis was carried out through G* Power 3.1 software (Faul, Erdfelder, Lang, & Buchner, 2009) with the following parameters: an alpha significant level (α=0.05), medium effect size (f^2=15), desired statistical power (1-P=0.95), along with the 19 predictors (six independent variables, one moderating variable and 12 interactions). The result showed that a minimum sample of 217 was required to test the multiple-regression- based model (Faul, Erdfelder, Lang, Buchner, 2007).

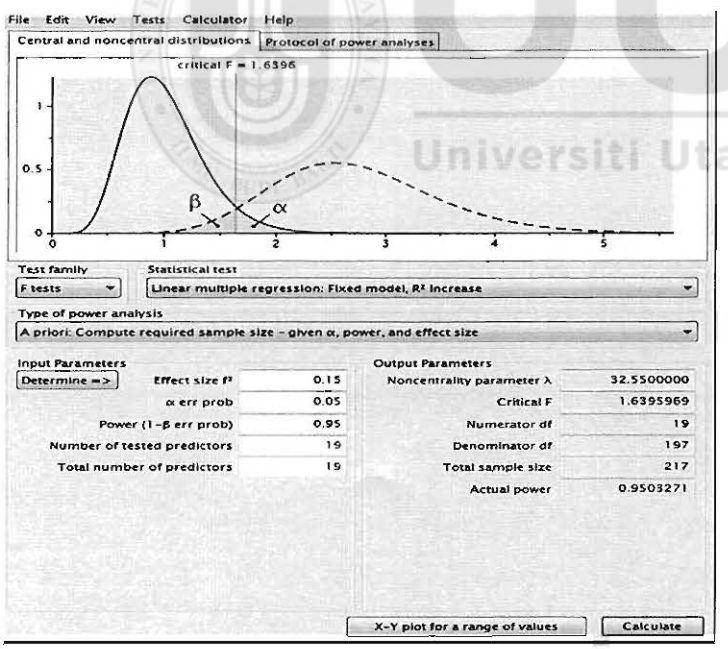


Figure 3.2
The Output of a Priori Power Analysis

3.3.1 Sampling Technique

The proportionate stratified random sampling method was used in this research because every subject had the similar chance to be selected from this population. The researcher chose this technique in order to ensure the quality and adequacy of responses. In this study, the random probability sample size of the entire target population has been divided into strata according to the number of departments. Subsequently, the random probability sample size was drawn from each of the subgroups. (Zikmund et al., 2010).

Based on Table 3.3, the total number of target respondent is 1266. According to Krejcie and Morgan's (1970) table, a sample size of 295 workers was required out of a population of 1266 workers in representing a cross-section of the population. Thus, 295 sets of questionnaires were distributed to the Grade U29 nurses.

The accurate number of Grade U29 nurses selected for sampling was based on percentages as shown in Table 3.3.

Table 3.3

Total Number of Samples

No.	Department	Population	Sample size
1	Accident & Emergency Department (A&E) and Outpatient Department (OPD)	55	13
2	Inpatient Department	70	16
3	General Medicine Department	193	45
4	General Surgery Department	145	34
5	Obstetrics and Gynaecology (O&G) Department	121	28
6	Pediatrics Department	98	22
7	Orthopedic Department	70	16
8	Anesthesia Department	178	42
9	Ophthalmology (Eye) Department	25	6
10	Otorhinolaryngology (Ear, Nose and Throat) Department	13	3
11	Dermatology (Skin) Department	6	2
12	Neurology (Nerve) Department	17	4
13	Nephrology Department	24	6
14	Neurosurgery Department	30	7
15	Urology Department	3	1
16	Plastic Surgery Department	16	4
17	Cardiothoracic Surgery Department	136	31

18	Cardiology Department	35	8
19	Respiratory Department	7	2
20	Psychiatric Department	24	5
	Total	**1266**	**295**

3.4 Questionnaire Design

The questionnaires contain three parts. The first part is made up of a cover letter, explanation of study's title, the aim of the questionnaire and a statement to declare respondent's confidentiality.

The second part consisted of fifty-five questions that were related to the dependent variable, the moderator, and the independent variables. These questions were related to management commitment, safety training, safety communication and feedback, employees' involvement, safety rules and procedures, safety promotion policies, leader-member exchange, safety compliance, and safety participation.

The third part consisted of seven questions on the respondents' demographic profiles. These questions were about information pertaining to gender, years of service in the current hospital, position, academic qualification, department and work experience.

3.5 Instrumentation

Safety management practices contain measurement adopted from Vindokumar and Bhasi (2010). Six dimensions of safety management practices are management commitment, safety training, safety communication and feedback, employees' involvement, safety

rules and procedures and safety promotion policies. Each dimension has its own items and the items are measured on 5 point Likert scale (1 = strong disagree; 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree)

The first dimension is Management Commitment. It consists of nine (9) items which are related to the dependent variable (Vindokumar & Bhasi, 2010). Some examples of items in the questionnaire include "Safety is given priority of the management."; "Safety rules and procedures are strictly followed by the management of the school." and "Corrective action is always taken when the management of the hospital is told about unsafe practices". The instrument has a reliability coefficient alpha of 0.86 (Vindokumar and Bhasi, 2010).

The second dimension is safety training which consists of six (6) items adopted from Vindokumar and Bhasi, (2010). Some examples of items in the questionnaire include "My hospital gives comprehensive training to the workers in hospital health and safety issues."; "Newly recruits are trained adequately to learn safety rules and procedures." and "Safety issues are given high priority in training programs." The instrument has a reliability coefficient alpha of 0.82 (Vindokumar and Bhasi, 2010).

The third dimension is employees' involvement which consists of five (5) items adopted from Vindokumar and Bhasi, (2010). Some examples of items in the questionnaire include "Management of the hospital always welcomes opinion from the workers before making final decisions on safety related matters."; "My hospital has safety committees consisting of representatives of management and workers." and "Management of the

hospital promotes workers involvement in safety related matters." The instrument has a reliability coefficient alpha of 0.69 (Vindokumar and Bhasi, 2010).

The fourth dimension is safety communication and feedback which consists of five (5) items adopted from Vindokumar and Bhasi, (2010). Some examples of items in the questionnaire include "My hospital doesn't have a hazard reporting system where employees can communicate hazard information before incidents occur."; "Management of the hospital operates an open door policy on safety issues." and "There is sufficient opportunity to discuss and deal with safety issues in meetings." The instrument has a reliability coefficient alpha of 0.70 (Vindokumar and Bhasi, 2010).

The fifth dimension is safety rules and procedures which consist of five (5) items adopted from Vindokumar and Bhasi, (2010). Some examples of items in the questionnaire include "The safety rules and procedures followed in my hospital are sufficient to prevent incidents occurring.", and "The facilities in the safety department are not adequate to meet the needs of my hospital." and "My supervisors and managers always try to enforce safety working procedures." The instrument has a reliability coefficient alpha of 0.81 (Vindokumar and Bhasi, 2010).

The sixth dimension is safety promotion policies which consist of five (5) items adopted from Vindokumar and Bhasi, (2010). Some examples of items in the questionnaire include "In my hospital, safe behavior is considered as a positive factor for job promotions.", and "In my hospital, employees are rewarded for reporting hazards (thanked, cash or other rewards, recognition in newsletter, etc.)" and "In my hospital, safety week celebration and other safety promotional activities arranged by the

management are very effective in creating safety awareness among the workers." The instrument has a reliability coefficient alpha of 0.64 (Vindokumar and Bhasi, 2010).

Leader-member exchange is measured by using eight (8) items adopted from the revised version of Bauer and Green (1996). Among the examples of items in the questionnaire include "My supervisor understands my problems and needs"; "My supervisor would be personally inclined to use his/her power to help me solve problems in my work"; and "I can count on my supervisor to "bail me out," even at his/ her own expense when I really need it". The instrument has a reliability coefficient alpha of 0.94 (Vindokumar and Bhasi, 2010).

Seven (7) items adopted from Vinodkumar & Bhasi (2010) were used to measure the safety compliance towards safety performance. Some examples of items in the questionnaire include "I use all necessary safety equipment to do my job"; "I carry out my work in a safe manner"; and "I follow correct safety rules and procedure while carrying out my job". The instrument has a reliability coefficient alpha of 0.76 (Vinodkumar & Bhasi, 2010).

Five (5) items adopted from Vinodkumar & Bhasi (2010) were used to measure the safety participation towards safety performance. Some examples of items in the questionnaire include " I help my co-workers when they are working under risky or hazardous conditions"; "I always point out to the management if any safety related matters are noticed in my company"; and "I put extra effort to improve the safety of the workplace". The instrument has a reliability coefficient alpha of 0.66 (Vinodkumar & Bhasi, 2010).

3.6 Data Collecting Procedure

A self-administered questionnaire which was considered as a suitable quantitative method to collect the data for this study. According to Sekaran and Bougie (2013), the questionnaire is one of the most common quantitative methods in a survey method to collect data. After the questionnaire had undergone a validation procedure through a pilot study, data collection was started. The questionnaires were distributed to the respondents in Hospital Pulau Pinang. The approval of the National Institutes of Health Malaysia (NIH) through the National Medical Research Register (NMRR) was obtained before conducting the research. All researches that involve the Ministry of Health (MOH) personnel or are to be conducted in MOH facilities such as public hospitals are required to be registered with the National Medical Research Register (NMRR), and get the approval of the National Institutes of Health Malaysia (NIH). The thesis proposal was given to the Ministry of Health for them to review so that they could clearly understand the issues in this research and give their approval.

Before distributing the questionnaire, a request letter and a copy of the thesis proposal were forwarded to the Director of Hospital Pulau Pinang and to give the explanations about the study objectives and the intention of the researcher. Once approval received, the researcher met the matron and then distributed the bilingual questionnaires with the help of matron and sisters. The researcher explained the purpose of the study and gave a detailed explanation of the questionnaire to the nurses and then collected back after giving adequate time for the nurses to fill in the questionnaire. As to gain more respondents to increase the response rate, a researcher or an officer who hold an official position in the particular workplace can be appointed to distribute the self-administered

questionnaire (Oppenheim, 2000). The Human Resource Department at the hospital, as mentioned earlier, showed that there were 1266 nurses in the hospital. Thus, 295 nurses were suitable to be used as samples for a population of 1266.

3.7 Translation of the Questionnaire

Initially, the questionnaire was produced and ready in English. The items in the questionnaire were translated using the back-translation method in order to achieve equivalences of measures in both English and Malay (Brislin, 1970). The English version questionnaire was translated into the Malay language with the help of experts in Pusat Bahasa, Universiti Utara Malaysia and the translated questionnaire was translated back into English by another expert to compare it with the original questionnaire. There is no difference after comparing the original version of the English questionnaire and the back-translated English version questionnaire.

3.8 Pilot Study

The reliability and validity of the questionnaire were tested by carrying out a pilot study before it was distributed to the respondents. A pilot test refers to "a small study to test research protocols, data collection instruments, sample recruitment strategies, and other research techniques in preparation for a larger study". It is important in a research project to reduce study flaws (Zikmund, et al., 2010), provide an opportunity to improve data integrity and safeguard human subjects (Leon, Davis, & Kraemer, 2011). A pilot study result can guide the researcher in the actual study and allow them to gauge the ambiguous aspects of the study in order to examine the feasibility of a research endeavor (Leon et al., 2011). It makes sure the processes of the main study such as recruitment, randomization,

treatment and follow-up assessments all can work together (Arain, Campbell, Cooper, & Lancaster, 2010). This applies to all types of research.

Cronbach's alpha is the most appropriate statistical test of reliability estimate of a number of questions because it can check for ordinal data, such as the Likert scale (Mcbride, Levasseur, & Li, 2013). The Cronbach's alpha is acceptable when the value is 0.70 and good when the value is 0.80 (Sekaran & Bougie, 2013) while a value above 0.60 could be considered as acceptable in the case of exploratory research (Hair, Anderson, Tatham, & Black, 1998; Loewenthal, 2004).

Cooper and Schindler (2008) stated that the appropriate sample size of the pilot study is range from 25 to 100 respondents, while Hill (1998) recommended that 10 to 30 respondents were acceptable. In this study, a total of 30 nurses were involved in the pilot study before the final questionnaire was administered. A pilot study was carried out to decide the required length and time to complete the questionnaire, to distribute the properly designed questionnaire and to reconfirm the language used was acceptable by the respondents.

Table 3.4
Pilot Study

Constructs	Number of Items	Cronbach Alpha's
Management Commitment	9	0.816
Safety Training	5	0.782
Employees' Involvement	4	0.691
Safety Communication and Feedback	3	0.653
Safety Rules and Procedures	5	0.776
Safety Promotion Policies	4	0.756
Leader-Member Exchange	8	0.795
Safety Compliance	7	0.790
Safety Partipation	5	0.870
Total	50	

Table 3.4 presents the finding of the pilot study. Five items were deleted in the questionnaire based on the result of the pilot study in reliability. The result of the pilot study after the amendment shows that the Cronbach's alpha values for the variables in this study are all above 0.60. Therefore, it can be concluded that all the variables are reliable and obtained an acceptable level of internal consistency.

3.9 Data Analysis

This section provides information about the statistical tools that help the researcher to analyze data and test the research hypotheses. Data that were collected from the completed questionnaire were coded and keyed into the Statistical Package for Social Science (SPSS) software version 22.0 and the Smart PLS3.0 for analysis. First, the data collected were examined by using SPSS to ensure that the data suitable to be analyzed by using PLS. Second, reliability analysis, internal consistency reliability, convergent validity, discriminant validity were calculated using SmartPLS 3.0 (Henseler, Ringle, &

Sinkovics, 2009). Third, a standard bootstrapping procedure was used to evaluate the structural model. Lastly, the significance of the path coefficients, value of R-square, effect size and predictive relevance were also reported in this study.

3.10 Conclusion

This chapter has highlighted the research methodology that was adopted in this research to answer the relationship of the research questions and the objectives set earlier in the current study.

CHAPTER FOUR

ANALYSIS AND FINDINGS

4.1 Introduction

This chapter presents results and analyses of the study by using PLS path modeling. This chapter is separated in four sections. The first section reported the data screening and preliminary analysis, followed by the second section which provides an assessment of the measurement model to determine the individual item reliability, internal consistency reliability, convergent validity and discriminant validity. In section three, results of the structural model were reported. Finally, the results of the hypotheses based on the assessment of the structural model were presented. The measurement model of this study was assessed with PLS-SEM. The relationships among the constructs of this study were analyzed and presented using the quantitative data that collected on participants through the questionnaires.

4.2 Response Rate

In this study, self-administered questionnaires was employed in data collection. A total number of 295 survey questionnaires were distributed to 295 Grade U29 nurses who are at risk of occupational accidents in the workplace. The final response comprised 295 questionnaires, which represented 100% of the total number of questionnaires distributed. According to the suggestion of Hair, Anderson, Tatham, Black, (2010), the sample size of the study should be ten times larger than the number of variables. Thus, the response rate

in this study is considered sufficient. Furthermore, this figure is also adequate for multivariate analyses as the respond rate of the participants is higher than 50 percent (Babbie, 2004; Zikmund, 2010). Table 4.1 shows the response rate of the questionnaires for this study.

Table 4.1
Response rate

Item	Frequency	Percentage
Distributed Questionnaires	295	100.00
Returned Questionnaires	295	100.00
Effective Response Rate	295	100.00

4.3 Demographic Characteristics Of Participants

This section presents the demographic factors of the sample of the study to enhance an understanding of the background information of the participants that participated in this current study. The demographic characteristics of the participants must be identified before reporting the findings of the survey. The characteristics of the participants examined in this study include position and grade, gender, education level, interaction, organizational tenure, unit tenure and event reported in 12 months. The demographic characteristics of the participants were measured on nominal and ordinal scales. Table 4.2 presents that all of the respondents were Grade U29 nurses (100%).

Regarding the gender of participants, the numbers of female respondents were more than the male respondents. Majority of the participants were 286 (96.9%) female, while the remaining of respondents were 9 (3.1%) male.

In the terms of the education level of participants, 10 (3.4%) of them had secondary school certificate, 277 (93.9%) had Diploma, 7 (2.4%) had Bachelor's degree, and 1

(0.3%) had Master degree. For the organizational tenure of participants, resulted showed that the highest number of participant were 1 to 5 years (63.4%), followed by the 6 to 10 years (16.6%), Less than 1 years (9.5%), 11 to 15 years (8.8%), 16 to 20 years (1%) and 21 years or more (0.7%). Thus, majority of the participants had considerable work experience. With the current hospital unit, approximately 62.4% of the participants had 1 to 5 years of working experience and 15.9% had 6 to 10 years of working experience. Additionally, 14.6% had less than 1 year of working experience, 5.4% had 11 to 15 years of working experience, 1.4% had 16 to 20 years of working experience, and 0.3% had 21 years of more of working experience. This indicated that quite a large number of the respondents have at least 1-5 years working experience at the current work area, thus they are regarded as suitable and knowledgeable for this study.

For the interaction, all of the participants (100%) had direct interaction or contact with the patients. In the terms of occupational accidents reported, 61.7% had no event reported, 29.2% had reported 1 to 2 events, 5.4% had reported 3 to 5 events, 2% had reported 6 to 10 reports, and 1.7% had reported 11-20 event reports.

Table 4.2

Descriptive Statistics of Participants' Demographic Factors

Demographic	Characteristics	Frequency	Percentage%
Position and Grade	Grade U29 Nurse	295	100
Total		295	100
Gender	Male	9	3.1
	Female	286	96.9
Education level	SPM	10	3.4
	Diploma	277	93.9
	Degree	7	2.4
	Master	1	0.3
Total		295	100
Organizational Tenure	Less than 1 year	28	9.5
	1 to 5 years	187	63.4

	6 to 10 years	49	16.6
	11 to 15 years	26	8.8
	16 to 20 years	3	1.0
	21 years or more	2	0.7
Total		295	100
Current hospital unit	Less than 1 year	43	14.6
	1 to 5 years	184	62.4
	6 to 10 years	47	15.9
	11 to 15 years	16	5.4
	16 to 20 years	4	1.4
	21 years or more	1	0.3
Total		295`	100
Interaction with patients	Yes	100	100
	No	0	0
Total		100	100
Event reports reported in 12 months	No events reports	182	61.7
	1 to 2 event reports	86	29.2
	3 to 5 event reports	16	5.4
	6 to 10 event reports	6	2
	11 to 20 event reports	5	1.7
Total		295	100

4.4 Descriptive Statistics Of Variables

The variables in this study were analyzed descriptively and performed in order to explain the characteristics of the variables. Thus, the descriptive statistics in the form of mean, standard deviation, as well as maximum and minimum values were determined for latent variables in this study. All the constructs in this study were measured using a five-point likert-scale.

The researchers used descriptive statistics to measure central tendencies and dispersions of the data set through the values obtained for the mean, standard deviation and maximum and minimum values. The function of the mean value is to measure the average of the data set (Meier & Brudney, 2002). Standard deviation measures the dispersion of data that deviate around the mean (Webster, 1998). Doane & Seaward,

(2007) stated that the minimum and maximum values are used to check for errors in data entry.

The general descriptive statistics of the variables used in this study was examined. Descriptive analysis was conducted for the dependent variable (Safety performance), Independent variables (Safety management practices), and moderator variable (Leader-member exchange). Descriptive statistics pertaining to management practices had six dimensions, namely, management commitment, safety training, safety communication and feedback, employee involvement, safety rules and procedures and safety promotion policies.

Table 4.3 shows descriptive analysis of variables. Management Commitment has a mean value of 3.72 and the standard deviation was 0.57 with the minimum value was 1.89 and the maximum value was 5.00. The mean value for safety training was 3.69 and the standard deviation was 0.63 with the minimum value was 1.80 and maximum value was 5.00. Meanwhile, the mean value for employee involvement was 3.62 and standard deviation was 0.60 with the minimum value was 2.00 and the maximum value was 5.00. The mean value for safety communication and feedback was 3.30 and the standard deviation was 0.62 with the minimum value was 1.67 and the maximum value was 5.00. The mean value for safety rules and procedures is 3.48 and the standard deviation was 0.53 with the minimum value was 2.20 and the maximum value was 5.00. The mean value for safety promotion policies was 3.19 and the standard deviation was 0.70 with the minimum value was 1.00 and the maximum value was 5.00. The mean value for leader-member exchange was 3.37 and the standard deviation was 0.53 with the minimum value was 1.75 and the maximum value was 5.00. The mean value for safety compliance was

3.59 and the standard deviation was 0.56 with the minimum value was 2.29 and the maximum value was 5.00. The mean value for safety participation was 3.87 and the standard deviation was 0.53 with the minimum value was 2.20 and the maximum value was 5.00.

In summary, the mean score for all variables are more than 3 and theses results indicated a moderate level of safety managmenet practices and safety performance.

Table 4.3

Results of Descriptive Statistics of all Dimensions (n=295)

Dimensions	Mean	Standard Deviation	Minimum	Maximum
Management Commitment	3.72	0.57	1.89	5.00
Safety Training	3.69	0.63	1.80	5.00
Employees Involvement	3.62	0.60	2.00	5.00
Safety Communication and Feedback	3.30	0.62	1.67	5.00
Safety Rules and Procedures	3.48	0.53	2.20	4.80
Safety Promotion Policies	3.19	0.70	1.00	5.00
Leader Member Exchange	3.37	0.53	1.75	5.00
Safety Compliance	3.59	0.56	2.29	5.00
Safety Participation	3.87	0.53	2.20	5.00

4.5 Data Screening and Preliminary Analysis

According to Coakes (2012) and Hair, et al., (2010), data screening is useful to check whether the data have been entered precisely and to identify any potential violations of the basic assumption when conducting multivariate analysis. Therefore, the preliminary analyses are checked and treated in the following sections, which include missing data,

assessment of outliers, normality test and multicollinearity test (Hair et al., 2010; Tabachnick & Fidell, 2007).

4.5.1 Missing Values

Missing data is common in a data sets collected in a survey (Coakes, 2012; Hair, et al., 2010). There is missing data when one or more survey questions are not answered by participant. Cohen and Cohen (1983) stated that there is unlikely to be problematic in the interpretation of the results even if the missing data up to 10%. In this study, the screening of the data in SPSS indicated that no variable had missing data. Hence, no values were replaced and the initial data screening started with the assessment of outliers.

4.5.2 Assessment of Outliers

According to Byrne (2010), outliers are any observations that are considerably dissimilar from all the others (respondents) in a given data. In other words, outliers are observations that are significantly different from other observations (Hair et al., 2010). The presence of outliers can lead to unreliable results and distort the estimates of regression coefficients (Verardi & Croux, 2008). Therefore, univariate and multivariate outliers were assessed. To find observations outsides SPSS value labels due to wrong entry of data, researcher used minimum and maximum statistics to tabulated frequency tables for all variables. The primary findings of frequency statistics shows that none of the value fall out from expected range.

The presences of univariate outliers can be detected using either standardized variable values (Z score) or by suing frequency distribution tables such as histograms, box plots and normal probability plots. The study used standardized variable values (z-scores)

threshold of ±3.29 or ±4.0 as recommended by Tabachinick et al., (2007) and Hair et al., (2010) respectively.

Tabachinick et al., (2007) suggested the detection of univariate outlier by observation of Z score using benchmark values with a cut-off of ±3.29 (p<.001 sig. level). Following Tabachinick et al., (2007) criterion, univariate outliers was not an issues in this study. . The Z-score for every indicator should be within range of ±3.29 (0.001 sig. level).

Table 4.4
Univariate Outlier Test (Z-score) (n=295)

Dimensions	**Highest Z-score**	**Lowest Z-score**
Management Commitment	2.27222	-3.23175
Safety Training	2.10406	-3.01510
Employees Involvement	2.29602	-2.72741
Safety Communication and Feedback	2.74358	-2.64494
Safety Rules and Procedures	2.48646	-2.41615
Safety Promotion Policies	2.58020	-3.11071
Leader Member Exchange	3.08710	-3.05621
Safety Compliance	2.54118	-2.34001
Safety Participation	2.12917	-3.16174

Furthermore, Mahalanobis distance (D2) measure was also used to determine the multivariate outliers. Mahalanobis distance (D2) is defined as "the distance of a case from the centroid of the remaining cases where the centroid is the point created at the intersection of the means of all the variables" (Tabachnick et al., 2007). Based on the 50 measurement items of the study, the threshold value of chi-square was 86.661 (p=0.001). This means that any case with a Mahalanobis (D2) values which above 86.661 should be removed from this study. Hence, there is no presence of multivariate outlier in this study and 295 cases were considered for further multivariate analysis.

4.5.3 Normality Test

According to Hair et al., (2010), normality is an important assumption for statistical analysis and structural equation model. It manages the way of data distribution for construct and its relationship with normal distribution (Tabachnick et al., 2007). They asserted that one of the basic postulation of regression analysis is that each variable in the study and all linear groupings of the variable are normally distributed.

Normality is this study applied statistical method of Skewness and Kurtosis to assess the normality. Tabachnick et al., (2013) stated that when the sample size is greater than 200, there is no obvious difference that can be seen from normality of Skewness and Kurtosis. Additionally, following similar argument Curran, West, & Finch (1996) stated that the value of Skewness should be lower than 2 and Kurtosis values should be lower than 7. In addition, Kline (2015) stated that problems would be revealed when absolute value of Skewnewss is more than 3 and Kurtosis value is more than 10. Based on this recommendation, the result of normality test presented that distribution of data in this study is normal because the value of both skewness and kurtosis of all items were within the acceptable range of < 3 and < 10.

Table 4.5
Normality test of the Variables (n=295)

Dimensions	Skewness	Kurtosis
Management Commitment	-.391	.475
Safety Training	-.138	-.127
Employees Involvement	-.173	-.041
Safety Communication and Feedback	.491	.079
Safety Rules and Procedures	-.417	-.116
Safety Promotion Policies	-.275	.581
Leader Member Exchange	.089	.287
Safety Compliance	.659	.049
Safety Participation	-.093	.612

4.5.4 Multicollinearity Test

Multicollinearity is a situation in which one or more exogenous latent constructs turn out to be highly correlated. Multicollinearity is a problem that occurs when predictor variables are tremendously correlated to 0.9 and above (Hair et al., 2010). It also rises the standard errors of the coefficients, which consecutively render the coefficients statistically non-significant (Tabachnick et al., 2007).Regression results from SPSS were used to examine Variance inflated factor (VIF) and tolerance value to detect multicollinearity problem. Hair, Ringle and Sarstedt (2013) recommended that the multicollinearity is presented when the variance inflacted factor (VIF) value is greater than 5 and when the tolerance value is less than 0.20. Table 4.6 indicates the value of variance inflated factor (VIF) and value of tolerance and it is clearly that no variable are interrelated with other variables. Therefore, the research concludes that there is no dilemma of multicollinearity between the variables under study.

Table 4.6

Multicollinearity Test Based on Assessment of Tolerance and VIF Values (n=295)

Independent Variable	Tolerance	VIF
Management Commitment	.499	2.004
Safety Training	.361	2.770
Employees Involvement	.377	2.650
Safety Communication and Feedback	.696	1.436
Safety Rules and Procedures	.412	2.426
Safety Promotion Policies	.701	1.428

4.6 Assessment of Measurement Model

PLS model evaluation is the presentation of measurement model results, which present the result of the individual item reliability, internal consistency reliability, convergent validity and discriminant validity (Chin, 2010; Hair, Hult, et al., 2013; Hair, Ringle, & Sarstedt, 2011; Henseler, et al., 2009).

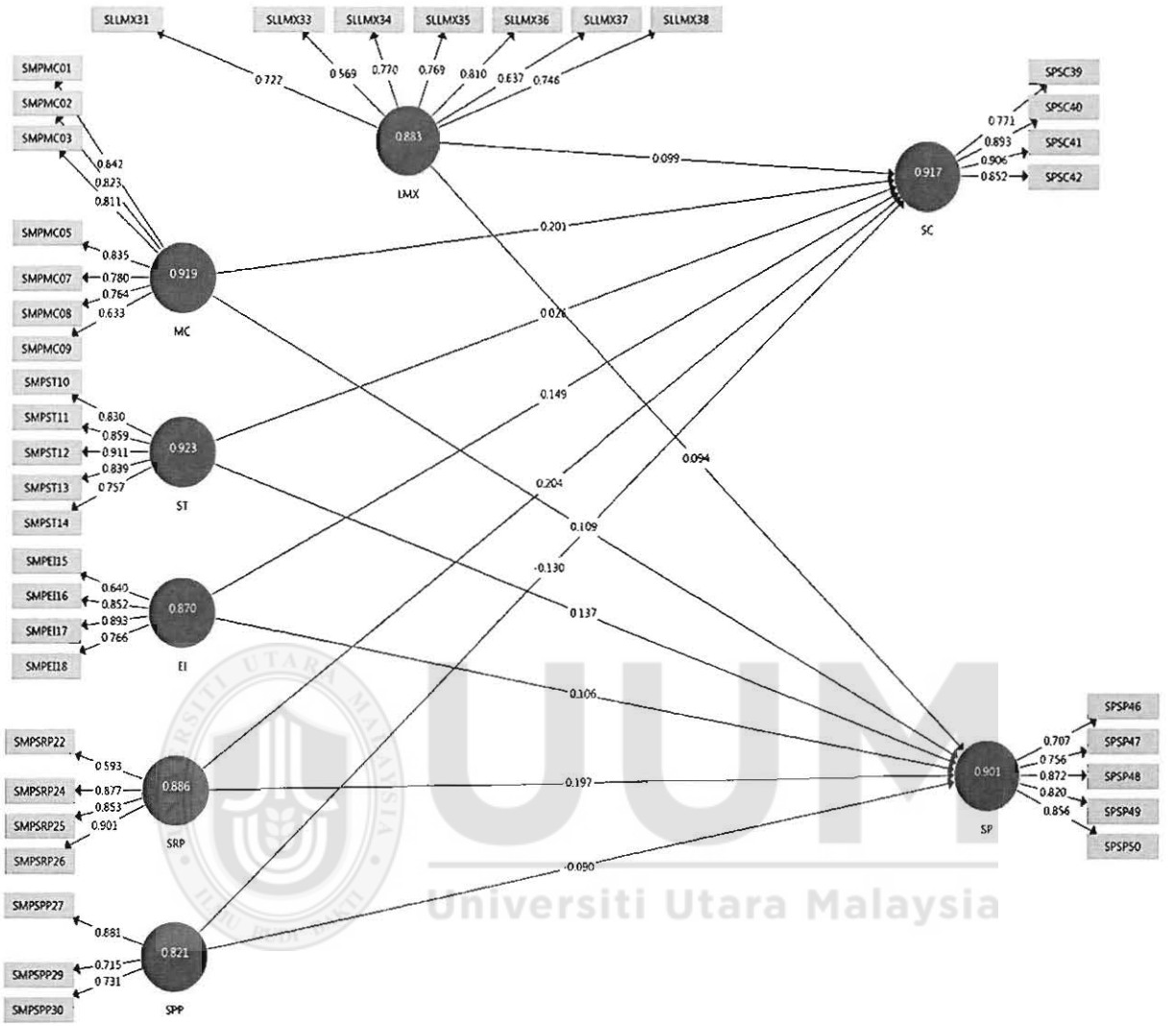


Figure 4.1: Measurement Model Results

4.6.1 Individual Item Reliability

The Cronbach's alpha was checked in this study to determine the extent the variables are reliable to measure the constructs (Hair et al., 2010). Reliability has been conducted on the scale to ascertain the applicability of the instrument. Babbie (2004) proclaimed that similar results should be acquired in a reliable study even the similar steps and methods were used repeatedly in the same study. If similar results can be reproduced when the

similar approach is used over and over again on similar respondent over difference periods of time, this measurement can be said to be reliable.

The reliability of the scale can be measured by the value of alpha coefficient, which ranges from 0 to 1. When the value is greater than 0.8, the Cronbach's alpha is regarded as a very good reliability and when the value is range from 0.7 to 0.8, the Cronbach's alpha is considered as a good reliability (Sekaran & Bougie, 2013, Hair et al., 2006) while a value above 0.60 could be considered as acceptable in the case of exploratory research (Loewenthal, 2004). As a result, 3 items were omitted from the data set and only 47 items were retained for further analysis.

Table 4.7 shows that all the independent and dependent variable having the Cronbach's alpha coefficient of higher than 0.6, thus they are all reliable items.

Table 4.7
Individual Item Reliability

Dimensions	**Cronbach's Alpha**
Management Commitment	0.844
Safety Training	0.897
Employees Involvement	0.804
Safety Rules and Procedures	0.708
Safety Promotion Policies	0.769
Leader Member Exchange	0.850
Safety Compliance	0.789
Safety Participation	0.864

4.6.2 Internal Consistency Reliability

Composite reliability is a measurement of each construct in the model to support the existence of convergent validity. The composite reliability of each construct assesses its internal consistency (McCrae, Kuyrtz, Yamagata & Terracciano, 2011). Additonally,

composite reliability was assessed to measure the reliability of the data collection under a certain construct (Hair et al., 2011). Based on the rule of thumb, the minimum standard for acceptable construct reliability should be at least 0.70 (Hair et al., 2013)

Table 4.8 refers that the values of composite reliability in this study are above the recommended 0.70 threshold.

Table 4.8
Composite Reliability

Latent constructs and indicators	**Composite Reliability**
Management Commitment	0.880
Safety Training	0.923
Employees Involvement	0.871
Safety Rules and Procedures	0.808
Safety Promotion Policies	0.740
Leader Member Exchange	0.881
Safety Compliance	0.766
Safety Participation	0.901

4.6.3 Convergent Validity

Hair et al. (2010) defined convergent validity as the extent to which the items used to measure a construct share a high proportion of common variance. Furthermore, it refers to the extent to which different means of data collection produce the same results (Churchill, 1992). Convergent validity among items of a construct can be checked by using various method, such as Conbrach's Alpha.

For assessing the convergent validity of the constructs, Fornell and Larcker's (1981) average variance extracted (AVE) criterion was employed.. Based on Henseler et al. (2009) and Hair et al., (2011), if the AVE Value is more than 0.50, the latent variable

provided can explain more than half of the variance of its indicators. As a result, 8 items were omitted from the data set and only 39 items were retained as they had loadings between 0.521 and 0.734.

Table 4.9
Loadings, Composite Reliability, and Average Variance Extracted

Latent constructs and indicators	**Average variance extracted (AVE)**
Management Commitment	0.619
Safety Training	0.707
Employees Involvement	0.630
Safety Rules and Procedures	0.665
Safety Promotion Policies	0.607
Leader Member Exchange	0.521
Safety Compliance	0.734
Safety Participation	0.647

4.6.4 Discriminant Validity

Discriminant validity condition is required to meet in order to achieve the construct validity. According to Byrne (2010), discriminant vadility can be seen as the extent to which a group of items estimates only one construct and how this construct is distinctly estimated. In other words, a greater discriminant validity indicates that a construct is unique and some phenomenon can be captured that other constructs do not (Hair et al., 2010). Furthermore, the discriminant validity also shows that the measured items do not have any cross loading issues.

Discriminant validity should be assessed to test the construct reliability. From Table 4.10, the square root of AVE of exceeding the correlations among latent constructs which performed that discriminant validity of the measurement model is met.

Table 4.10

Latent Variable Correlations and Square Roots of Average Variance Extracted

Latent constructs and indicators	**EI**	**LMX**	**MC**	**SC**	**SP**	**SPP**	**SRP**	**ST**
Employees Involvement	**0.794**							
Leader Member Exchange	0.428	**0.722**						
Management Commitment	0.635	0.434	**0.787**					
Safety Compliance	0.399	0.310	0.413	**0.857**				
Safety Participation	0.395	0.319	0.379	0.750	**0.804**			
Safety Promotion Policies	0.570	0.463	0.531	0.242	0.270	**0.779**		
Safety Rules and Procedure	0.664	0.528	0.620	0.421	0.427	0.585	**0.816**	
Safety Training	0.731	0.510	0.637	0.376	0.414	0.603	0.692	**0.841**

Table 4.11

Cross Loadings

Latent constructs and indicators	**MC**	**ST**	**EI**	**SRP**	**SPP**	**LMX**	**SC**	**SP**
SMPMC01	**0.842**	0.510	0.509	0.473	0.474	0.366	0.344	0.301
SMPMC02	**0.823**	0.535	0.496	0.507	0.445	0.352	0.352	0.294
SMPMC03	**0.811**	0.455	0.465	0.464	0.387	0.296	0.357	0.304
SMPMC05	**0.835**	0.499	0.500	0.511	0.447	0.340	0.314	0.326
SMPMC07	**0.780**	0.480	0.511	0.491	0.422	0.353	0.331	0.291
SMPMC08	**0.764**	0.509	0.564	0.519	0.345	0.358	0.310	0.317
SMPMC09	**0.633**	0.542	0.457	0.454	0.407	0.335	0.254	0.248
SMPST10	0.561	**0.830**	0.564	0.593	0.499	0.460	0.291	0.318
SMPST11	0.510	**0.859**	0.576	0.569	0.558	0.383	0.303	0.338
SMPST12	0.593	**0.911**	0.669	0.637	0.546	0.424	0.382	0.422
SMPST13	0.584	**0.839**	0.654	0.616	0.491	0.497	0.342	0.374
SMPST14	0.399	**0.757**	0.606	0.474	0.431	0.380	0.235	0.257
SMPEI15	0.362	0.455	**0.640**	0.433	0.467	0.315	0.239	0.172
SMPEI16	0.544	0.537	**0.852**	0.487	0.413	0.314	0.431	0.390
SMPEI17	0.559	0.659	**0.893**	0.578	0.463	0.347	0.316	0.333
SMPEI18	0.526	0.694	**0.766**	0.640	0.526	0.417	0.228	0.307

SMPSRP22	0.371	0.428	0.473	**0.593**	0.414	0.272	0.137	0.103
SMPSRP24	0.548	0.615	0.580	**0.877**	0.436	0.449	0.432	0.446
SMPSRP25	0.478	0.539	0.507	**0.853**	0.502	0.479	0.308	0.334
SMPSRP26	0.595	0.654	0.626	**0.901**	0.594	0.479	0.386	0.374
SMPSPP27	0.508	0.539	0.519	0.527	**0.881**	0.403	0.283	0.281
SMPSPP29	0.360	0.420	0.383	0.431	**0.715**	0.339	0.101	0.157
SMPSPP30	0.304	0.435	0.404	0.382	**0.731**	0.343	0.080	0.126
SLLMX31	0.462	0.508	0.405	0.532	0.501	**0.722**	0.295	0.299
SLLMX33	0.253	0.290	0.262	0.297	0.262	**0.569**	0.043	0.086
SLLMX34	0.259	0.335	0.245	0.297	0.325	**0.770**	0.179	0.206
SLLMX35	0.256	0.362	0.250	0.346	0.288	**0.769**	0.253	0.267
SLLMX36	0.355	0.396	0.363	0.445	0.340	**0.810**	0.320	0.270
SLLMX37	0.224	0.291	0.298	0.279	0.262	**0.637**	0.117	0.146
SLLMX38	0.302	0.305	0.315	0.361	0.284	**0.746**	0.151	0.187
SPSC39	0.310	0.403	0.360	0.380	0.239	0.339	**0.771**	0.496
SPSC40	0.386	0.294	0.356	0.369	0.228	0.247	**0.893**	0.640
SPSC41	0.346	0.256	0.290	0.310	0.197	0.241	**0.906**	0.706
SPSC42	0.366	0.325	0.350	0.374	0.164	0.231	**0.852**	0.725
SPSP46	0.214	0.205	0.234	0.254	0.079	0.208	0.595	**0.707**
SPSP47	0.214	0.267	0.260	0.227	0.122	0.180	0.560	**0.756**
SPSP48	0.357	0.421	0.408	0.434	0.336	0.300	0.663	**0.872**
SPSP49	0.367	0.392	0.346	0.370	0.286	0.306	0.537	**0.820**
SPSP50	0.322	0.325	0.301	0.374	0.184	0.255	0.675	**0.856**

4.6.5 Restatement of Hypotheses

Restatement of the hypotheses of this study has been made after analyzing and reviewing the results of the data screening. Hence, following are the proposed of new hypotheses for further analysis of the study:

H1: Safety management practices are positively related to safety performance.

H1a: Management commitment is positively related to safety compliance.

H1b: Safety training is positively related to safety compliance.

H1c: Employees' involvement is positively related to safety compliance.

H1d: Safety rules and procedures are positively related to safety compliance.

H1e: Safety promotion policies are positively related to safety compliance.

H1f: Management commitment is positively related to safety participation.

H1g: Safety training is positively related to safety participation.

H1h: Employees' involvement is positively related to safety participation.

H1i: Safety rules and procedures are positively related to safety participation.

H1j: Safety promotion policies are positively related to safety participation.

H2: Leader-member exchange moderates the relationship between safety management practices and safety performance.

H2a: Leader-member exchange moderates the relationship between management commitment and safety compliance.

H2b: Leader-member exchange moderates the relationship between safety training and safety compliance.

H2c: Leader-member exchange moderates the relationship between employees' involvement and safety compliance.

H2d: Leader-member exchange moderates the relationship between safety rules and procedures and safety compliance.

H2e: Leader-member exchange moderates the relationship between safety promotion policies and safety compliance.

H2f: Leader-member exchange moderates the relationship between management commitment and safety participation.

H2g: Leader-member exchange moderates the relationship between safety training and safety participation.

H2h: Leader-member exchange moderates the relationship between employees' involvement and safety participation.

H2i: Leader-member exchange moderates the relationship between safety rules and procedures and safety participation.

H2j: Leader-member exchange moderates the relationship between safety promotion policies and safety participation.

4.7 Assessment of Significance of the Structural Model

The standard bootstrapping procedure, which included 5000 bootstrap samples as recommended by Hair et al., (2011) and Henseler et al., (2009 was used in this study to assess the significant of the path coefficients. Figure 4.2 shows the structural model with the moderator, and Table 4.12 that demonstrates the path coefficients and the bootstrapping results.

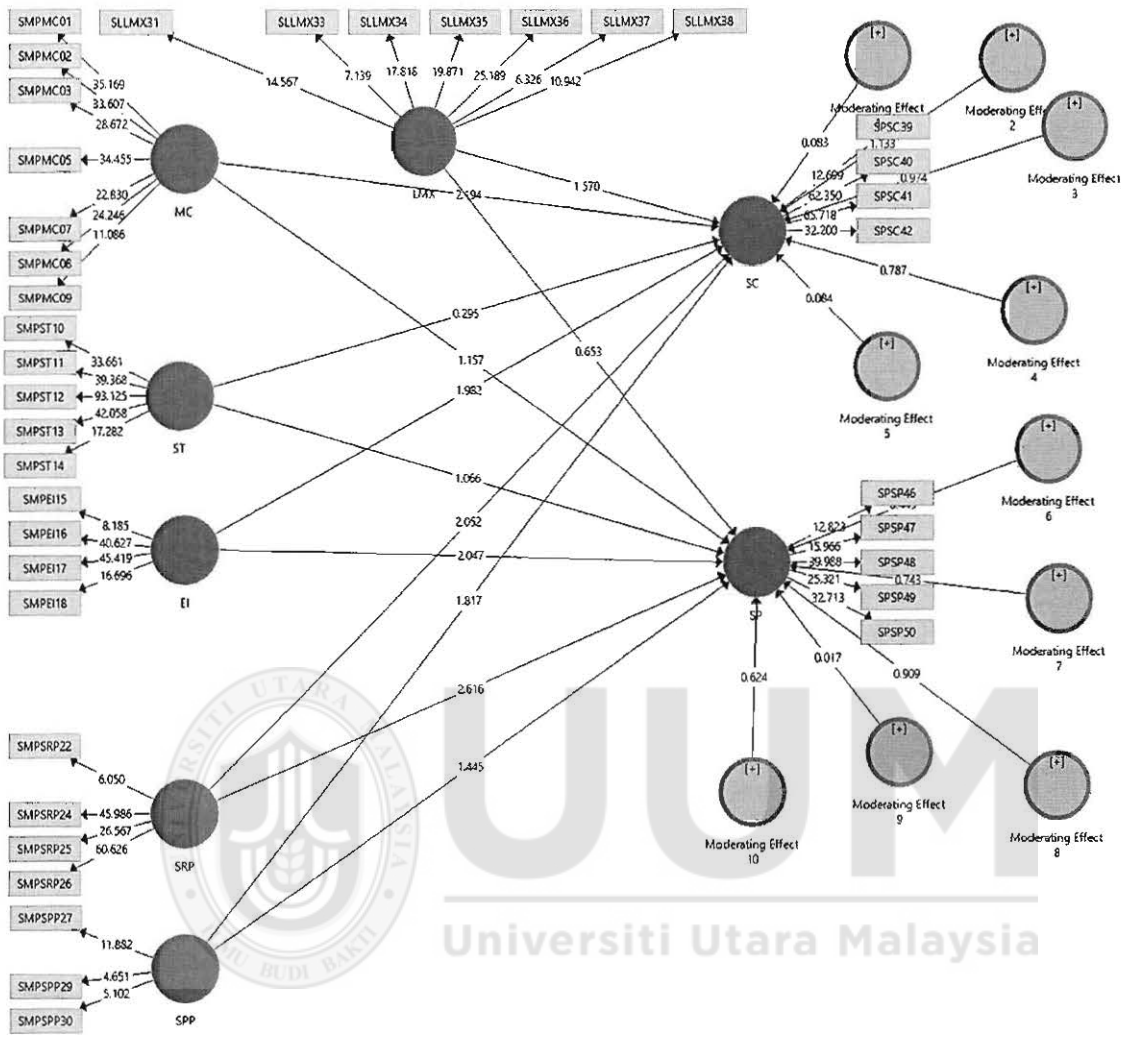


Figure 4.2

The structural model with moderator (full model)

Table 4.12

Structural Model Assessment with Moderator (Full Model)

Hypothesis	Relationship	Beta	St.Error	T-Value	P Value	Decision
H1	**SMP-->SPM**					
H1a	MC-->SC	0.160	0.073	2.194	0.028**	**Supported**
H1b	ST-->SC	0.025	0.086	0.295	0.768	Not Supported
H1c	EI-->SC	0.171	0.086	1.982	0.048**	**Supported**
H1d	SRP-->SC	0.188	0.092	2.052	0.040*	**Supported**
H1e	SPP-->SC	-0.147	0.081	1.817	0.069*	**Supported**
H1f	MC-->SP	0.084	0.072	1.157	0.247	Not Supported
H1g	ST-->SP	0.095	0.090	1.066	0.287	Not Supported
H1h	EI-->SP	0.183	0.089	2.047	0.041**	**Supported**
H1i	SRP-->SP	0.205	0.078	2.616	0.009***	**Supported**
H1j	SPP-->SP	-0.103	0.071	1.445	0.149	Not Supported
H2	**LMX * SMP-->SPM**					
H2a	LMX * MC-->SC	-0.010	0.118	0.083	0.934	Not Supported
H2b	LMX * ST-->SC	-0.202	0.178	1.133	0.257	Not Supported
H2c	LMX * EI-->SC	-0.126	0.129	0.974	0.330	Not Supported
H2d	LMX * SRP->SC	0.081	0.103	0.787	0.431	Not Supported
H2e	LMX * SPP-->SC	-0.008	0.095	0.084	0.933	Not Supported
H2f	LMX * MC-->SP	0.053	0.118	0.449	0.653	Not Supported
H2g	LMX * ST-->SP	0.095	0.128	0.743	0.458	Not Supported
H2h	LMX * EI-->SP	0.176	0.194	0.909	0.364	Not Supported
H2i	LMX * SRP->SP	0.002	0.106	0.017	0.986	Not Supported
H2j	LMX * SPP-->SP	-0.059	0.093	0.624	0.533	Not Supported

***Significant at 0.01, **Significant at 0.05, *Significant at 0.1

4.7.1 Assessment of Variance Explained in the Endogenous Latent Variables

This section discusses another important criterion for evaluating the structural model in PLS-SEM. The value of R-square otherwise called coefficient of determination.

The value of R^2 suggests that the degree of differences in the DV(s) can be explained by predictor variable(s) (Hair et al., 2010; Elliott & Woodward, 2007). An R-squared estimation of 0.10 were recommended by Falk and Miller (1992) as minimal acceptable level. Furthermore, Chin (1998) suggested R-square estimation of 0.67 as substantial, 0.33 as moderate and 0.19 as weak, respectively.

Table 4.13 shows the R-squared values of the two endogenous variables.

Table 4.13
Variance Explained in the Endogenous Latent Variable

Latent Variable	**Variance Explained (R^2)**
Safety Compliance	0.24
Safety Participation	0.23

As reported in Table 4.13, the research model show that the R^2 value of safety compliance (0.24) and safety participation (0.23) are moderate. Hence, the endogenous latent variable has met with Falk and Miller's (1992) benchmark for a minimum acceptable value of R-square.

4.7.2 Assessment of Effect Size (F^2)

Effect size in PLS-SEM is important to determine the changes in (R^2) to distinguish whether there is a substantive impact of a particular exogenous latent variable on the endogenous construct. Chin (1998) affirmed that effect size is calculated to explore whether a change in R-square values would have any impact from the result of excluding

a particular exogenous latent variable impact on the endogenous latent variable. To determine the effect size, the effect size F^2 was calculated with the following formula:

$$f^2 = \frac{R^2_{\text{included}} - R^2_{\text{excluded}}}{1 - R^2_{\text{included}}}$$

Cohen (1988) affirmed that F^2 values of 0.02 as small, 0.15 as medium and 0.35 as large large effect sizes of the exogenous latent variables on endogenous latent variables. Table 4.14 presents the effect size of the relationship between the variables.

Table 4.14
Effect Sizes of the Latent Variables on Cohen's (1988) Recommendation

Exogenous latent variables	**Effect Sizes**	
	SC	**SP**
Management Commitment	0.026	0.008
Safety Training	0.000	0.008
Employees Involvement	0.011	0.006
Safety Rules and Procedures	0.022	0.020
Safety Promotion Policies	0.012	0.006
Leader Member Exchange	0.008	0.008

4.7.3 Assessment of Predictive Relevance (Q^2)

The concept of measuring (Q^2) predictive relevance allows for a straightforward extension to PLS model (Lohmoler, 1989, Wold, 1982) which provides indices of predictive relevance for the inner and outer model. The (Q^2) is a criterion to evaluate how well the model estimates omitted data (Chin, 1998; Palmer & O'Connell, 2009; Hair et al, 2014; Peng Lai, 2012). The first method to identify the omitted data is Validated

Communicality (H^2) This method is using latent variant score to predict the data points. While the second method is Cross Validated Redundancy (Q^2). This method is using the latent variables to predict the questionable blocks in the research model. Thus, a PLS model has cross-validated redundancy measure (Q^2) value greater than 0, it shows as the one has predictive relevance. However, the model is lack of predictive relevance if the cross-validated redundancy measure (Q^2) is smaller than 0 (Henseler et al., 2009; Hair et al., 2011)

Table 4.15
Construct Cross-validated Redundancy for Endogenous Latent variable

Latent Variable	**Construct cross-validated redundancy**
Safety Compliance	0.151
Safety Participation	0.129

As shown in Table 4.15, the cross-validation redundancy measure (Q^2) for the endogenous latent variable (safety compliance and safety participation) has greater than 0. Thus, it can be concluded that the PLS model has predictive relevance (Geisser, 1974; Hair et al., 2014; Palmer & O' Connel, 2009; Ringle et al., 2012; Peng Lai, 2012; Chin, 1998; Henseler).

4.8 Summary of the Chapter.

In this chapter, the detailed description of the results of the data collected in this study was presented. The data screening was conducted, including missing value analysis, assessment of outliers, tests of normality and multicollinearity assessment. Next, sample characteristics are presented, followed by the measurement model as well as the structural

model which were assessed with PLS-SEM using the SmartPLS 3.0 software package developed by Ringle et al., (2014). Lastly, results from hypothesis testing are reported.

CHAPTER FIVE

DISCUSSION AND CONCLUSION

5.1 Chapter Overview

This final chapter discusses and concludes the findings of the study based on the research objectives that covered in Chapter one. Next, the implications of the study, limitations and recommendations for future research are also provided in this chapter. Finally, the overall conclusion of the study is explained at the end of the chapter.

5.2 Recapitulation Of The Study

The main purpose of this study is to investigate the relationship between safety management practices and safety performance and determine the moderating role of leader-member exchange between safety management practices and safety performance. From this, 20 hypotheses (both the direct and moderating hypotheses) were developed to represent the constructs dimensional relationship. The result of the analysis found the 6 direct hypotheses were supported. The discussion of the findings in line with the previous literatures and theories is presented in the next section.

5.3 Discussions

Based on the results obtained from data analysis, out of 20 hypotheses, only 6 hypotheses are accepted while the other 14 hypotheses are rejected. The results of hypotheses testing are discussed accordingly.

5.3.1 Safety Performance

The first research question was the level of safety performance and the level of perception on the safety management practices among Grade U29 nurses in Hospital Pulau Pinang, which was measured by examining the mean value of both dimensions of safety management practices (management commitment, safety training, employees' involvement, safety communication and feedback, safety rules and procedures, and safety policies) and safety performance (safety compliance and safety participation).

Based on the collected data, the mean and standard deviation of safety management practices were between 3.19 (0.70) to 3.72 (0.57). These findings suggest that the level of perception on the safety management practices of Grade U29 nurses in the hospital was moderate and the result of the present study is consistent with that reported by Abdullah, Spickett, Rumchev, & Dhaliwal, (2009). In their studies, they found the mean of perception on the safety management practices among the nurses are between 3. 31 (0.72) to 3.84 (0.63) on 5 point Likert scale. On the mean score of the dimension of safety management practices, the respondents were highly satisfied with the management commitment and were probably the respondents believe that the management is a vital factor in reducing the workplace accidents and enhance their knowledge and competence in occupational safety and health.

Furthermore, the mean and standard deviation of safety compliance were 3.59 and 0.56 and the mean and standard deviation of safety participation were 3.87 and 0.53 on 5 point Likert scale. These findings suggest that the level of safety performance of Grade U29 nurses in the hospital was moderate and this is quite consistent with the previous studies conducted in health care industry. For example, Munir et al., (2016) conducted a study to

examine the safety training and workers involvement on safety performance (safety compliance and safety participation) in the health care industry in Nigeria. He found the mean of safety compliance of 3.26 with a standard deviation of .78 and safety participation of 3.98 with a standard deviation of .56. Furthermore, according to the statistics prepared by the Social Security Organization (SOSCO) from 2013 to 2015, the level of safety performance in health care industry was excellent in terms of applying the requirements of occupational safety compared with the trading and the construction sector.

However, the level of safety performance in health care industry in Malaysia was low when compared with previous studies that considered safety performance. For example, Smith and Dejoy (2014) found the mean for safety participation was 11.46 with a standard deviation of 2.13, and the mean for safety compliance was 13.03 with a standard deviation of 1.48. Vinodkumar and Bhasi (2010) conducted a study to examine the effect of safety management practices on safety performance in India. The study found the mean for safety participation was 3.80 with a standard deviation of 0.61 and the mean for safety compliance was 3.88 with a standard deviation of 0.70. Additionally, Neal and Griffin (2006) found that mean of safety compliance and safety participation were 4.48 and 3.93, with a standard deviation of .63 and .89, in their study of examining the relationships among safety climate, safety motivation and safety behavior in the USA. As the above studies employed the same instrument in measuring safety performance, this makes the comparison more valid and meaningful.

5.3.2 Main Effect of the Relationship between Safety Management Practices on Safety Performance

Following the second and third research questions, safety management practices are hypothesized to have a positive effect on safety performance (H1). 10 hypotheses were formulated and tested which consistent with the aforesaid research objective. The results of the PLS path modeling supported six of the hypotheses including management commitment (safety compliance), employee involvement (safety compliance and safety participation), safety promotion policies (safety compliance), and safety rules and procedures (safety compliance and safety participation). While other hypotheses were not supported in this study. The results of the hypotheses on the safety management practices and safety performance are discussed below.

5.3.2.1 Relationship of Management Commitment and Safety Performance

According to the PLS analysis result, the study found a significant positive relationship between management commitment and safety compliance (β=0.160, t=2.149, p=0.028), indicating that management is committed to safety tend to have better safety compliance than those employees who do not have such perception. This finding appears to be consistent with that of other studies that found a significant effect of management commitment on safety compliance (Vredenburghm, 2002; Vinodkumar & Bhasi, 2010; Choudhry, Fang, & Ahmed, 2008; Huang, Ho, Smith, & Chen, 2006). For example, Vinodkumar & Bhasi (2010) conducted a study to examine the effect of safety management practices on safety performance in India. They found safety management practices to be related to safety performance (safety compliance and safety participation).

Management commitment to safety refers to the degree at which top management identifies safety as a guiding principle of the organization. Thus, the result is in line with previous studies (Vredenburghm, 2002; Huang et al., 2006, Bailey, 1997) that reported a positive relationship between management commitment and safety compliance. In addition, other studies indicated there is a positive relationship between management and their level of commitment and employee's (Buchanan, 1974; DeCotiis & Summers; 1987; Dunham, Grube, & Castenada., 1994; Meyer & Allen, 1991).

However, the analysis result shows that management commitment did not influence safety participation (β=0.084, t=1.157, p=0.247). This is contrary to the initial hypothesis which indicated that management commitment will have a significant relationship with safety participation. The reasonable cause of this finding is hospital management level failed in taking employee's matters and worries in a serious manner and to be unsuccessfully in solving safety issue immediately when it happened.

Employees' trust towards safety system will be abolished when their concern have been ignored this lead to irresponsible behaviors in the future such as not reporting possible risks and hazards to the hospital management. Therefore, a formal procedure should be made by hospital management to react to employee's safety concerns and their reports related to safety incidents. Besides, a good communication bridge should be built between hospital management and employees to avoid any safety incident to happened.

5.3.2.2 Relationship of Safety Training and Safety Performance

According to the PLS analysis result, safety training did not influence the safety compliance (β=0.025, t=0.295, p=0.768) as well as safety participation (β=0.095, t=1.066,

p=0.287), indicating that safety training will not result in employees adherence to safety performance procedures and performance of work in a safe manner. This finding appears to be consistent with that of other studies that found no significant effect of safety training on safety performance (Ali, Abdullah, & Subramaniam, 2009; Vredenburgh, 2002). For example, a study conducted by Vredenburgh (2002) to determine the degree to which safety training contributed to safe work environment for hospital employees. This study found that training was inadequate to reduce injury rates and organizations must focus on an integrated program to build the capacity of workers to cope with accidents and injuries in workplace.

Given that, it was expected that safety training would improve their safety performance. However, safety training appeared not to affect whether employee follows work safety rules and participated more in safety activities. One possible explanation for this finding may due to management's failure in appreciating the importance of safety training.

Notably, management thinks that safety training does not bring notable result in enhancing worker safety performance. For this reason, management level is not giving sufficient attention and effort in providing safety training to worker (Ismail & Yani, 2005; Hyman, 1992). As things go, nurses will not be putting attention in workplace safety and lost interest in safety training seeing that hospital management does not show their concern on worker safety and health.

5.3.2.3 Relationship of Employee Involvement and Safety Performance

The results of this study showed a significant positive relationship between employee involvement and safety performance (safety compliance and safety participation) among

Grade U29 nurses in Hospital Pulau Pinang. According to the PLS analysis result, employee involvement significantly affect the safety compliance (β=0.171, t=1.982, p=0.048) as well as safety participation (β=0.183, t=-2.047, p=0.041). Employees with higher involvement in safety tended to have higher safety performance than those with lower participation. They should be consulted before the final decision is made by the employers, particularly those will influence the safety of employees. (Vredenburgh, 2002). Allowing employee involvement in safety is considered good management practices as employees are involved in safety and health committee. They are also taking part and committed about safety matters before any decision is taken.

The finding of the current study is consistent with the previous studies that examined the effect of safety involvement on safety performance (Ali et al., 1998; Carder & Ragan, 2003; Costella, et al., 2009; Vinodkumar & Bhasi 2010; Vredenburgh 2002; Vassie & Lucas, 2001; Khairiah, 2008). Furthermore, other studies found a significant and positive relationship between employee involvement and lower accident rates (Cohen, 1977; Shannon, Mayr, & Haines, 1997). Additionally, employees' involvement means employees are prepared to take up responsibility that engages themselves actively in activities that support the learning process and inspire them to support and cooperate with each other in creating a workplace free from the accident (Geldart, Shannon & Lohfeld, 2005; Topf, 2001).

5.3.2.4 Relationship of Safety Rules and Procedures and Safety Performance

The results of this study showed a significant positive relationship between safety rules and procedures and safety performance (safety compliance and safety participation) among Grade U29 nurses in Hospital Pulau Pinang. According to the PLS analysis result,

safety rules and procedures did influence the safety compliance (β=0.188, t=2.052, p=0.04) as well as safety participation (β=0.205, t=-2.616, p=0.009). This finding appears to be consistent with that of other studies that demonstrated a significantly positive effect of safety rules and procedures on safety performance (Mearns, Whitaker, & Flin 2003; Cox & Cheyne, 2000; Farooqui, 2011).

According to Farooqui (2011), a safety program that prescribed safe behaviors, involve contractor's selection, training, inspections motivation, enforcement can increase the worker's performance. In his finding, he also mentioned that implementation of effective safety programs such as safety rules and procedures have positive correlation in reducing accidents. Safety rules and procedures also encourage employee involvement in working in a safe manner across all industries. Thus, employees tend to achieve good safety performance when safety rules are implemented well by the organization.

5.3.2.5 Relationship of Safety Promotion Policies and Safety Performance

The results of this study showed a significant positive relationship between safety promotion policies and safety compliance among Grade U29 nurses in Hospital Pulau Pinang. According to the PLS analysis result, safety promotion policies have a positive effect on safety compliance (β=-0.147, t=-1.817, p=0.069), indicating that safety promotion policies will result in employees adherence to safety performance procedures and performance of work in a safe manner. This finding appears to be consistent with that of other studies that demonstrated a significantly positive effect of safety promotion policies on safety compliance (Dejoy et al., 2010; Geldart et al., 2010).

However, the results indicated that safety promotion policies as a dimension of management practices do not have significant on safety participation (β=-0.103, t=-1.445, p=0.149).This is possibly due to reward systems is not seem implemented in order to motivate the employees in the hospital. The study done by Hagan, Montgomery and O' Reilly (2001) mentioned that incentives of rewards, appreciation and recognition to the employees will motivate the employees to participate in safety activities and thus prevent occupational accidents. Thus, implementation of good safety promotion policies like a reward system in an efficient and effective way leading employees to boost up their safety performance in the workplace.

5.3.3 Moderating Effect of Leader-Member Exchange

The present study investigated that leader-member exchange moderates the relationship between safety management practices and safety performance. However, the findings indicated that all of the hypothesized moderating effects of leader-member exchange (H2) were found not to be significant.

Hypothesis (H2) which posited that leader-member exchange would moderate the relationship between safety management practices and safety performance was tested and no significant evidence was found to support that leader-member exchange moderates the relationship between safety management practices and safety performance. Hence H2 is not supported. The finding may be explained by the fact that safety concern might not be affected by the LMX (Zhou & Jiang, 2015). According to Grestner et al., (1997), leader-member exchange theory is based on employee's perception of the relationship between supervisor and subordinates. This perception comes from a high degree of trust, interaction, support, rewards, time and energy devoted to work mutual affect, loyalty,

obligation to change and respect between leader and member (Dinesch & Liden, 1986; Liden & Maslyn, 1998). Furthermore, the performance of the worker would be lower if the supervisor only provides the subordinates with basic information that related to work. Thus, the employee may not engage in actions and positive behaviors that concerning safety performance, if the supervisor does not provide any support and resources to them

Another possible explanation for the lack of support for the hypothesized relationships pertain to the sample size for this study is not large enough. According to Hair et al., (2010), larger sample sizes (N>500) is a requirement to test the moderating effect on the continuous variable interactions. The number of respondents for this study was only 295, which is less the threshold of 500 and above recommended by Hair et. al.

Another justification may be due to the differences in the behavior norm of values of hospitals in different environment, such as public hospital and private hospital. Okpara et al. (2007) found that different types of culture and environment would also affect the research outcomes. In other words, cultural differences could influence the strength of the relationship between independent variables and dependent variables. This is in agreement with the current study that found insignificance effect of leader-member exchange on the relationship between safety management practices and safety performance.

5.4 Implications

Findings from this study have several important implications, both in practice and theory. In the first section, it will focus on managerial implications for hospital management who strive to identify and reduce the occupational hazard and disease in the workplace, while the second section will elaborate the theoretical implications.

5.4.1 Managerial Implications

The studies on influences of safety management practices towards safety performance are not only providing a valuable outcome to the academic world but also to the management to understand the safety management practices and safety performance in health care industries.

The result of the current study found safety management practices partially associated with safety performance. Hence, the present findings have some contribution to human resource management activities, such as management commitment, safety promotion policies, safety rules and procedures, and employee involvement. First, the findings of this study have some implications to the management commitment activities conducted by the Hospital Pulau Pinang. Management commitment involves, the willingness of leaders to exert efforts for managers to be accountable for the safety of all employees in the organization and ensure that work was done under a high level of commitment to safety (Garrett & Perry, 1996). Hence, it was found that management commitment was associated with positive safety performance.

Second, the findings of this study have some implications to safety rules and procedures conducted by the Hospital Pulau Pinang. Safety rules and procedures is defined as the extend of an organization establishing the goal and purpose, constructing a series of work principles in conducting employees' manner at work and building a safety structure to guide employees' safety behaviors (Lu & Yang, 2011). The current findings indicated that safety rules and procedures were associated with positive safety performance, thus confirming the role of safety rules and procedures in reducing accident and injuries in the workplace. Thus, management of Hospital Pulau Pinang needs to encourage the

employees to comply with safety rules and procedures in order to reduce the workplace accident.

Third, employee involvement involves, the level of empowerment that the employee possesses when facing safety issues at work. Therefore, employee involvement is vital because they are the personnel who are close to their jobs and know the risk well (Vredenburgh 2002). Therefore, Hospital Pulau Pinang should give due attention to employees by allowing them to participate in decisions related to safety and involvement in drawing policies and strategies.

Finally, the findings of this study have some implications to safety promotion policies activities conducted by the Hospital Pulau Pinang. Safety promotion policies is defined as the policies that guarantee to keep the safety conditions appropriately and make sure the safety level is achieved and maintained at an optimum level (Welander, Svanstrom & Ekaman, 2004). The current findings indicated that safety promotion policies activities were associated with positive safety performance because the formal policies such as the statistics of injury rate and safety rewards can improve the safety performance in the workplace (Geldart, et al., 2010). Therefore, this study emphasizes the importance of safety promotion policies in Hospital Pulau Pinang.

5.4.2 Theoretical Implications

This study was done to investigate the relationship of safety management practices and safety performance and the moderating role of leader-member exchange on the relationship between safety management practices and safety performance in Grade U29 nurses in Hospital Pulau Pinang. There are similar studies conducted in other industry,

thus this provides valid results for this research. Furthermore, this study would contribute values to the academic research because only a few studies have been conducted in health care industries in Malaysia.

In conclusion, study findings in this research are believed to has a new contribution to current literatures relevant to leadership and safety performance, and findings would be theoretically valuable because the study was carried out in health care industry.

5.5 Limitation of Research

There are some limitations as regard to the process of carrying out this research. First, feedbacks given by the participants are unpredictable. Some of the respondents may answer the question given just for the satisfaction of the researcher. Besides, they may be hiding some information in order to protect the reputation of the hospital.

Second, the data collected was gathered from 295 usable questionnaires, through a period between June and July, 2017, making this research as a cross-sectional survey. For this research, the data collected for measuring the relationship between the variables was only gathered at a point time. Therefore, this study cannot infer casual associations of all the variables in this study on a longitudinal basis and may not be able to comprehensively explain the factors that could impact the safety performance.

Third, this study was conducted in only Hospital Pulau Pinang due to the time constraint, which limits the generalizability of the result. The findings obtained in this study may not be able to generalize the findings of other samples across cultures of different industrial

zone. Different hospital and workplace environment may have different results of safety management practices, leader-member exchange and safety performance.

Fourth, the questionnaire of study is answered only by Grade U29 nurses (as respondents), and as such, there may be a bias in their answers concerning their safety management practices and safety performance compared with other nurses.

5. 6 Recommendations for Other Researchers

This study used model which was adopted from Vinodkumar & Bhasi (2010) to find the relationship between safety management practices and safety performance of Grade U29 Hospital Pulau Pinang. Other researchers may use other approaches in order to obtain more accurate results regarding Hospital Pulau Pinang nurses' safety performance. Second, this survey research used a cros-sectional design to collect the study data. Hence, further work will be needed to establish the effect of changes over a longer period of time in the aspects of management practices, and leader-member exchange. Therefore, a longitudinal studies to should be considered in future research to create a causal relationship of all the variables in this study. Finally, the research was only conducted in the Hospital Pulau Pinang in Malaysia. Future research should consider whether replicating this study in another hospital in the same industry, especially in terms on the moderating effect of leader-member exchange. Furthermore, to widen the knowledge and understanding on the contributing factors in improving safety performance in Malaysia, more researches in sectors others from health care such as manufacturing, construction, agriculture, petrochemical and iron and steel, etc. should be conducted

5.7 Conclusion

Based on the objective of the research, the relationship between safety management practices and safety performance and potential moderating role on leader-member exchange on the impact of safety management practices on safety performance in the Hospital Pulau Pinang in Malaysia was examined.

This study used the available instruments in the form of a questionnaire that by many researchers. First, the questionnaire was adapted from Vinodkumar and Bhasi (2011), which examined the safety management practices and safety performance.

Second, the questionnaire was adapted from Bauer and Green (1996) to examine the leader-member exchange. It contains 8 items with five-point Likert scale(1=Strongly Disagree, 5 =Strongly Agree). The survey was distributed to the Grade U29 nurses to collect rating of each respondent's performance. They are requested to fill in and complete the questionnaire.

Based on the findings of this research work, the study concludes that safety management practices is significantly related to the dimensions of safety performance. The study has found that management commitment and safety promotion policies are significantly related to safety compliance. Similarly, safety rules and procedures and employee involvement are also found to be significantly related to safety performance (safety compliance and safety participation).

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Appendix A

English Questionnaire

QUESTIONNAIRE

Dear Participants,

I am a postgraduate student at Universiti Utara Malaysia. I am currently conducting a research project regarding safety performance, to fulfil the Master requirement of the university. The intention of this study is to find out the relationship between safety management practices, safety leadership and safety performance among nurses.

This is an anonymous survey whereby all responses will be kept strictly confidential and will be used for academic purposes only.

Thank you for your time and participation.

Yours sincerely,

Teo Wei Loong

Master candidate : Master of Science (Occupational Safety and Health) Management

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Please tick (√) in the appropriate box to indicate your level of agreement or disagreement with the following statements according to the scale below.

Strong Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Part 1 Safety Management Practices

Please indicate your agreement or disagreement with the following statements.

	Management Commitment	1	2	3	4	5
1	Safety is given high priority of the management.					
2	Safety rules and procedures are strictly followed by the management of the hospital.					
3	Corrective action is always taken when the management of the hospital is told about unsafe practices.					
4	In my hospital, managers/supervisors do not show interest in the safety of the workers.					
5	Management of the hospital considers safety to be equally important as healthcare delivery.					
6	Members of the management do not attend safety meetings.					
7	I feel that management of the hospital is willing to compromise on safety for increasing healthcare delivery.					
8	When near-miss accidents are reported, my management acts quickly to solve the problem.					
9	My hospital provides sufficient personal protective equipment for the workers.					

	Safety Training	1	2	3	4	5
10	My hospital gives comprehensive training to the workers in hospital health and safety issues.					
11	Newly recruits are trained adequately to learn safety rules and procedures.					
12	Safety issues are given high priority in training programs.					
13	Management of the hospital encourages the workers to attend safety training programs.					
14	Safety training given to me is adequate to enable me to assess hazards in workplace.					
	Employees Involvement	1	2	3	4	5
15	Management of the hospital always welcomes opinion from the workers before making final decisions on safety related matters.					
16	My hospital has safety committees consisting of representatives of management and workers.					
17	Management of the hospital promotes workers involvement in safety related matters.					
18	Management of the hospital consults with workers regularly about hospital health and safety issues.					
	Safety Communication and Feedback	1	2	3	4	5
19	My hospital doesn't have a hazard reporting system where employees can communicate hazard information before incidents occur.					
20	Management of the hospital operates an open door policy on safety issues.					
21	The target and goals for safety performance in my hospital are not clear to the workers.					

	Safety Rules and Procedures	1	2	3	4	5
22	The safety rules and procedures followed in my hospital are sufficient to prevent incidents occurring.					
23	The facilities in the safety department are not adequate to meet the needs of my hospital.					
24	My supervisors and managers always try to enforce safety working procedures.					
25	Safety inspections are carried out regularly.					
26	The safety procedures and practices in this hospital are useful and effectives.					
	Safety Promotion Policies	1	2	3	4	5
27	In my hospital, safe behavior is considered as a positive factor for job promotions.					
28	In my hospital, employees are rewarded for reporting hazards (thanked, cash or other rewards, recognition in newsletter, etc.)					
29	In my hospital, safety week celebration and other safety promotional activities arranged by the management are very effective in creating safety awareness among the workers.					
30	There exists very healthy competition among the workers to find out and report unsafe condition and acts.					

Part 2 Safety Leadership

Please tick (√) in the appropriate box to indicate your level of agreement or disagreement with the following statements.

	Leader Member Exchange (LMX)	1	2	3	4	5
31	My supervisor understands my problems and needs.					
32	My supervisor would be personally inclined to use his/her power to help me solve problems in my work.					
33	I can count on my supervisor to "bail me out," even at his/ her own expense when I really need it.					
34	I have enough confidence in my supervisor that I would defend and justify his/her decisions if he/she were not present to do so. .					
35	I usually know where I stand with my supervisor.					
36	I would view my working relationship with my supervisor as extremely effective.					
37	I usually know how satisfied my supervisor is with me.					
38	My supervisor recognizes my potential well.					

Part 3 Safety Performance

Please tick (√) in the appropriate box to indicate your level of agreement or disagreement with the following statements.

	Safety Compliance	1	2	3	4	5
39	I use all necessary safety equipment to do my job.					
40	I carry out my work in a safe manner.					
41	I follow correct safety rules and procedures while carrying out my job.					
42	I ensure the highest levels of safety when I carry out my job.					
43	Occasionally due to lack of time, I deviate from correct and safe work procedures.					
44	Occasionally due to over familiarity with the job, I deviate from correct and safe work procedures					
45	It is not always practical to follow all safety rules and procedures while doing a job.					
	Safety Participation	1	2	3	4	5
46	I help my co-workers when they are working under risky or hazardous conditions.					
47	I always point out to the management if any safety related matters are noticed in my hospital.					
48	I put extra effort to improve the safety of the workplace.					
49	I voluntarily carryout tasks or activities that help to improve workplace safety.					
50	I encourage my co-workers to work safely.					

Part B: Demographic profile of the respondents

Please tick (√) to the following question about yourself.

1. Gender :

( ) Male ( ) Female

2. Level of education

( ) SPM ( ) Diploma ( ) Degree

( ) Master ( ) PHd.

( ) Others (Please specify: _____)

3. Please write down your staff position and grade in this hospital.

Position: _____ Grade: _____

4. In your staff position, do you typically have direct interaction or contact with patients?

( ) Yes ( ) No

5. How long have your worked in this hospital?

( ) Less than 1 year ( ) 11 to 15 years

( ) 1 to 5 years ( ) 16 to 20 years

( ) 6 to 10 years ( ) 21 years or more

6. How long have you worked in your current hospital work area/unit?

( ) Less than 1 year ( ) 11 to 15 years

( ) 1 to 5 years ( ) 16 to 20 years

( ) 6 to 10 years ( ) 21 years or more

7. In the past 12 months, how many event reports have you filled out and submitted?

( ) No event reports ( ) 6 to 10 event reports

( ) 1 to 2 event reports ( ) 11 to 20 event reports

( ) 3 to 5 event reports ( ) 21 event reports or more

-THANK YOU FOR COMPLETING THIS SURVEY-

Appendix B

Malay Questionnaire

BORANG SOAL SELIDIK

Kepada peserta,

Saya ialah pelajar pascasiswazah di Universiti Utara Malaysia. Untuk makluman, saya sedang menjalankan kajian berkaitan pencapaian keselamatan bagi memenuhi syarat pengijazahan peringkat sarjana di universiti ini. Tujuan kajian ini dijalankan adalah untuk mengenal pasti hubungan di antara amalan pengurusan keselamatan, kepimpinan keselamatan, dan pencapaian keselamatan dalam kalangan jururawat.

Soal selidik ini adalah sulit, semua maklum balas adalah rahsia dan akan digunakan hanya untuk tujuan akademik.

Terima kasih kerana sudi meluangkan masa untuk melengkapkan soal selidik ini.

Yang benar,

Teo Wei Loong

Calon Sarjana : Master of Science (Occupational Safety and Health) Management

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Sila tandakan (√) pada ruangan yang sesuai bagi menunjukkan tahap persetujuan anda bagi penyataan berikut berdasarkan skala di bawah:

Sangat Tidak Bersetuju	Tidak Bersetuju	Neutral	Bersetuju	Sangat Bersetuju
1	2	3	4	5

Bahagian 1 Amalan Pengurusan Keselamatan

Sila nyatakan tahap persetujuan anda dengan penyataan berikut:

	Komitmen Pihak Pengurusan	1	2	3	4	5
1	Pihak pengurusan memberikan keutamaan tertinggi terhadap aspek keselamatan.					
2	Pihak pengurusan hospital sangat mematuhi peraturan dan prosedur keselamatan.					
3	Pihak hospital selalunya akan membuat penambahbaikan apabila mendapat maklumat tentang amalan yang tidak selamat.					
4	Pengurus/ penyelia di hospital saya tidak menunjukkan minat terhadap keselamatan para pekerja.					
5	Bagi pihak pengurusan hospital, aspek keselamatan adalah sama pentingnya dengan perkhidmatan kesihatan.					
6	Ahli pengurusan tidak menghadiri mesyuarat keselamatan.					
7	Saya merasakan bahawa pihak pengurusan hospital bersedia untuk mempertimbangkan aspek keselamatan bagi meningkatkan penyampaian perkhidmatan kesihatan.					
8	Apabila kemalangan nyaris dilaporkan, pihak pengurusan segera bertindak untuk menyelesaikannya.					
9	Hospital saya menyediakan peralatan perlindungan peribadi yang mencukupi kepada pekerja.					

	Latihan Keselamatan	1	2	3	4	5
10	Hospital saya menyediakan latihan kesihatan dan keselamatan yang komprehensif kepada para pekerja.					
11	Pekerja baharu dilatih dengan secukupnya untuk mempelajari peraturan dan prosedur keselamatan.					
12	Isu-isu keselamatan diberikan keutamaan dalam program latihan.					
13	Pihak pengurusan hospital menggalakkan para pekerja menghadiri program latihan keselamatan.					
14	Latihan keselamatan yang diberikan kepada saya adalah memadai bagi membolehkan saya menangani bahaya di tempat kerja.					
	Penglibatan Pekerja	1	2	3	4	5
15	Pihak pengurusan hospital sentiasa mengalu-alukan pendatang para pekerja sebelum membuat keputusan akhir berkaitan aspek keselamatan.					
16	Hospital saya mempunyai jawatankuasa keselamatan yang ahlinya terdiri daripada pihak pengurusan dan pekerja.					
17	Pihak pengurusan hospital menggalakkan penglibatan pekerja dalam hal yang berkaitan dengan keselamatan.					
18	Pihak pengurusan hospital selalu berbincang dengan pekerja tentang isu kesihatan dan keselamatan di hospital.					
	Komunikasi dan Maklum Balas Keselamatan.	1	2	3	4	5
19	Hospital saya tidak mempunyai sistem laporan bahaya (hazard) yang membolehkan pekerja menyampaikan maklumat bahaya sebelum berlaku sesuatu insiden.					
20	Pihak pengurusan hospital melaksanakan dasar terbuka terhadap isu keselamatan.					
21	Sasaran dan matlamat pencapaian keselamatan di hospital adalah tidak jelas bagi pekerja.					

	Peraturan dan Prosedur Keselamatan	1	2	3	4	5
22	Peraturan dan prosedur keselamatan yang dipatuhi di hospital ini adalah mencukupi bagi membendung berlakunya insiden.					
23	Kemudahan di jabatan keselamatan adalah tidak memadai dalam memenuhi keperluan hospital.					
24	Penyelia dan pengurus saya sentiasa cuba untuk menguatkuasakan prosedur keselamatan pekerja.					
25	Pemantauan keselamatan dijalankan secara berkala.					
26	Prosedur dan amalan keselamatan yang dilaksanakan di hospital ini adalah berguna dan berkesan.					
	Polisi Galakan Keselamatan	1	2	3	4	5
27	Di hospital tempat saya bekerja, tingkah laku selamat dianggap sebagai faktor positif bagi galakan pekerjaan.					
28	Di hospital tempat saya bekerja, pekerja diberikan ganjaran jika melaporkan tentang keadaan bahaya (penghargaan, pemberian tunai atau ganjaran lain, pengiktirafan dalam akhbar, dan sebagainya)					
29	Di hospital tempat saya bekerja,sambutan minggu keselamatan dan aktiviti galakan keselamatan lain yang diaturkan oleh pihak pengurusan sangat berkesan bagi mewujudkan kesedaran keselamatan dalam kalangan pekerja.					
30	Terdapat persaingan yang sangat sihat dalam kalangan pekerja untuk mengetahui dan melaporkan keadaan dan perlakuan yang tidak selamat.					

Bahagian 2 Kepimpinan Keselamatan

Tandakan (√) pada petak yang bersesuaian untuk menunjukkan tahap persetujuan anda dengan penyataan di bawah.

	Hubungan Pemimpin-Anggota	1	2	3	4	5
31	Penyelia memahami masalah dan keperluan saya.					
32	Penyelia akan cenderung menggunakan kuasanya untuk membantu saya menyelesaikan masalah dalam kerja.					
33	Saya boleh mengharapkan penyelia untuk menyelamatkan saya, sehinggakan dengan perbelanjaan beliau sendiri apabila saya benar-benar perlukannya.					
34	Saya mempunyai keyakinan yang penuh terhadap penyelia dan akan mempertahankan serta mewajarkan keputusan beliau sekiranya beliau tidak hadir/ada untuk berbuat demikian.					
35	Saya selalunya tahu kedudukan saya pada pandangan penyelia.					
36	Saya menganggap hubungan kerja antara saya dengan penyelia saya sebagai amat berkesan.					
37	Saya selalunya tahu sejauh mana penyelia berpuas hati terhadap saya.					
38	Penyelia sangat mengiktiraf keupayaan saya.					

Bahagian 3 Pencapaian Keselamatan

Sila tandakan (√) pada petak yang bersesuaian bagi menunjukkan tahap persetujuan anda dengan penyataan berikut.

	Kepatuhan Keselamatan	1	2	3	4	5
39	Saya menggunakan kesemua peralatan keselamatan yang perlu semasa melakukan pekerjaan.					
40	Saya melaksanakan kerja dengan cara yang selamat.					
41	Saya mematuhi peraturan dan prosedur keselamatan yang betul semasa melaksanakan pekerjaan.					
42	Saya memastikan tahap keselamatan yang paling tinggi semasa melaksanakan pekerjaan.					
43	Berikutan kesuntukan masa, saya kadang kala menyimpang daripada prosedur kerja yang betul dan selamat.					
44	Oleh kerana sangat terbiasa dengan pekerjaan, saya kadang kala menyimpang daripada prosedur kerja yang betul dan selamat.					
45	Bukanlah sesuatu yang praktikal untuk sentiasa mematuhi kesemua peraturan dan prosedur semasa melaksanakan pekerjaan.					
	Penglibatan Keselamatan	1	2	3	4	5
46	Saya membantu rakan sekerja apabila mereka berhadapan dengan risiko atau keadaan yang membahayakan dalam pekerjaan.					
47	Saya selalu memaklumkan pihak pengurusan sekiranya terdapat sebarang perkara berkaitan keselamatan yang timbul di hospital tempat saya bekerja.					
48	Saya berusaha keras untuk meningkatkan tahap keselamatan di tempat kerja.					
49	Saya dengan sukarela melaksanakan tugas atau aktiviti yang boleh membantu meningkatkan keselamatan tempat kerja.					
50	Saya menggalakkan rakan sekerja untuk bekerja secara selamat.					

Bahagian B: Profil Demografi Responden.

Sila tandakan (√) pada soalan tentang diri anda berikut.

1. Jantina:

( ) Lelaki ( ) Perempuan

2. Level of education / Tahap pendidikan

( ) SPM ( ) Diploma ( ) Ijazah Pertama

( ) Ijazah Sarjana ( ) Phd.

( ) lain-lain (Sila nyatakan: _____)

3. Sila tuliskan nama jawatan dan gred anda di hospital ini.

Jawatan: _____ Gred: _____

4. Dengan jawatan anda, adakah anda mempunyai interaksi atau hubungan secara langsung dengan pesakit?

( ) Ya ( ) Tidak

5. Sudah berapa lamakah anda berkhidmat di hospital ini?

( ) Kurang daripada 1 tahun ( ) 11 hingga 15 tahun

( ) 1 hingga 5 tahun ( ) 16 hingga 20 tahun

( ) 6 hingga 10 tahun ( ) 21 tahun dan lebih

6. Sudah berapa lamakah anda berkhidmat dalam bidang kerja/unit semasa?

( ) Kurang daripada 1 tahun ( ) 11 hingga 15 tahun

( ) 1 hingga 5 tahun ( ) 16 hingga 20 tahun

( ) 6 hingga 10 tahun ( ) 21 tahun dan lebih

7. Dalam tempoh 12 bulan sebelum ini, berapa banyakkah laporan kejadian yang telah anda isi dan serahkan?

( ) Tiada laporan kejadian ( ) 6 hingga 10 laporan kejadian

( ) 1 hingga 2 laporan kejadian ( ) 11 hingga 20 laporan kejadian

( ) 3 hingga 5 laporan kejadian ( ) 21 atau lebih laporan kejadian

- TERIMA KASIH KERANA SUDI MELENGKAPKAN SOAL SELIDIK INI-

Appendix C : NORMALITY TEST

Descriptive Statistics for the Normality Test

	N	Min.	Max.	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
MC	295	1.89	5.00	3.72	0.57	-.391	.142	.475	.283
ST	295	1.80	5.00	3.69	0.63	-.138	.142	-.127	.283
EI	295	2.00	5.00	3.62	0.60	-.173	.142	-.041	.283
SCF	295	1.67	5.00	3.30	0.62	.491	.142	.079	.283
SRP	295	2.20	4.80	3.48	0.53	-.417	.142	-.116	.283
SPP	295	1.00	5.00	3.19	0.70	-.275	.142	.581	.283
LMX	295	1.75	5.00	3.37	0.53	.089	.142	.287	.283
SC	295	2.29	5.00	3.59	0.56	.659	.142	.049	.283
SP	295	2.20	5.00	3.87	0.53	-.093	.142	.612	.283

Appendix D : PLS-SEM MEASUREMENT

D1: Cronbachs Alpha

	Cronbachs Alpha
MC	0.844
ST	0.897
EI	0.804
SRP	0.708
SPP	0.769
LMX	0.850
SC	0.789
SP	0.864

D2: Composite Reliability

	Composite Reliability
MC	0.880
ST	0.923
EI	0.871
SRP	0.808
SPP	0.740
LMX	0.881
SC	0.766
SP	0.901

D3: Average Variance Extracted (AVE)

	AVE
MC	0.619
ST	0.707
EI	0.630
SRP	0.665
SPP	0.607
LMX	0.621
SC	0.734
SP	0.647

D4: Discriminant Validity

Latent Variable Correlations

	EI	LMX	MC	SC	SP	SPP	SRP	ST
EI	**0.794**							
LMX	0.428	**0.722**						
MC	0.635	0.434	**0.787**					
SC	0.399	0.310	0.413	**0.857**				
SP	0.395	0.319	0.379	0.750	**0.804**			
SPP	0.570	0.463	0.531	0.242	0.270	**0.779**		
SRP	0.664	0.528	0.620	0.421	0.427	0.585	**0.816**	
ST	0.731	0.510	0.637	0.376	0.414	0.603	0.692	**0.841**

D5: Cross-loadings measure

Cross Loadings

	Management Commitment	**Safety Training**	**Employee Involvement**	**Safety Rules and Procedures**	**Safety Promotion Policies**	**Leader-member Exchange**	**Safety Compliance**	**Safety Participation**
SMPMC01	**0.842**	0.510	0.509	0.473	0.474	0.366	0.344	0.301
SMPMC02	**0.823**	0.535	0.496	0.507	0.445	0.352	0.352	0.294
SMPMC03	**0.811**	0.455	0.465	0.464	0.387	0.296	0.357	0.304
SMPMC05	**0.835**	0.499	0.500	0.511	0.447	0.340	0.314	0.326
SMPMC07	**0.780**	0.480	0.511	0.491	0.422	0.353	0.331	0.291
SMPMC08	**0.764**	0.509	0.564	0.519	0.345	0.358	0.310	0.317
SMPMC09	**0.633**	0.542	0.457	0.454	0.407	0.335	0.254	0.248
SMPST10	0.561	**0.830**	0.564	0.593	0.499	0.460	0.291	0.318
SMPST11	0.510	**0.859**	0.576	0.569	0.558	0.383	0.303	0.338
SMPS	0.593	**0.911**	0.669	0.637	0.546	0.424	0.382	0.422

T12								
SMPS T13	0.584	**0.839**	0.654	0.616	0.491	0.497	0.342	0.374
SMPS T14	0.399	**0.757**	0.606	0.474	0.431	0.380	0.235	0.257
SMPEI 15	0.362	0.455	**0.640**	0.433	0.467	0.315	0.239	0.172
SMPEI 16	0.544	0.537	**0.852**	0.487	0.413	0.314	0.431	0.390
SMPEI 17	0.559	0.659	**0.893**	0.578	0.463	0.347	0.316	0.333
SMPEI 18	0.526	0.694	**0.766**	0.640	0.526	0.417	0.228	0.307
SMPS RP22	0.371	0.428	0.473	**0.593**	0.414	0.272	0.137	0.103
SMPS RP24	0.548	0.615	0.580	**0.877**	0.436	0.449	0.432	0.446
SMPS RP25	0.478	0.539	0.507	**0.853**	0.502	0.479	0.308	0.334
SMPS RP26	0.595	0.654	0.626	**0.901**	0.594	0.479	0.386	0.374
SMPS PP27	0.508	0.539	0.519	0.527	**0.881**	0.403	0.283	0.281
SMPS PP29	0.360	0.420	0.383	0.431	**0.715**	0.339	0.101	0.157
SMPS PP30	0.304	0.435	0.404	0.382	**0.731**	0.343	0.080	0.126
SLLM X31	0.462	0.508	0.405	0.532	0.501	**0.722**	0.295	0.299
SLLM X33	0.253	0.290	0.262	0.297	0.262	**0.569**	0.043	0.086
SLLM X34	0.259	0.335	0.245	0.297	0.325	**0.770**	0.179	0.206
SLLM X35	0.256	0.362	0.250	0.346	0.288	**0.769**	0.253	0.267
SLLM X36	0.355	0.396	0.363	0.445	0.340	**0.810**	0.320	0.270
SLLM X37	0.224	0.291	0.298	0.279	0.262	**0.637**	0.117	0.146
SLLM X38	0.302	0.305	0.315	0.361	0.284	**0.746**	0.151	0.187
SPSC39	0.310	0.403	0.360	0.380	0.239	0.339	**0.771**	0.496
SPSC40	0.386	0.294	0.356	0.369	0.228	0.247	**0.893**	0.640
SPSC4	0.346	0.256	0.290	0.310	0.197	0.241	**0.906**	0.706

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SPSC42	0.366	0.325	0.350	0.374	0.164	0.231	**0.852**	0.725
SPSP46	0.214	0.205	0.234	0.254	0.079	0.208	0.595	**0.707**
SPSP47	0.214	0.267	0.260	0.227	0.122	0.180	0.560	**0.756**
SPSP48	0.357	0.421	0.408	0.434	0.336	0.300	0.663	**0.872**
SPSP49	0.367	0.392	0.346	0.370	0.286	0.306	0.537	**0.820**
SPSP50	0.322	0.325	0.301	0.374	0.184	0.255	0.675	**0.856**

APPENDIX E : PLS-SEM STRUCTURAL MODELS

E1: Path Coefficient

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (IO/STDEVI)	P values
MC -> SC	0.160	0.147	0.073	2.194	0.028
ST - > SC	0.025	0.009	0.086	0.295	0.768
EI -> SC	0.171	0.168	0.086	1.982	0.048
SRP -> SC	0.188	0.203	0.092	2.052	0.040
SPP - > SC	-0.147	-0.126	0.081	1.817	0.069
MC -> SP	0.084	0.093	0.072	1.157	0.247
ST-> SP	0.095	0.093	0.090	1.066	0.287
EI -> SP	0.183	0.155	0.089	2.047	0.041
SRP -> SP	0.205	0.212	0.078	2.616	0.009
SPP -> SP	-0.103	-0.100	0.071	1.445	0.149
LMX * MC -> SC	-0.010	0.025	0.118	0.083	0.934
LMX * ST -> SC	-0.202	0.027	0.178	1.133	0.257
LMX * EI -> SC	-0.126	-0.073	0.129	0.974	0.330
LMX * SRP -> SC	0.081	0.001	0.103	0.787	0.431
LMX * SPP -> SC	-0.008	-0.071	0.095	0.084	0.933
LMX * MC -> SP	0.053	0.024	0.118	0.449	0.653
LMX * ST -> SP	0.095	0.100	0.128	0.743	0.458
LMX * EI -> SP	0.176	0.022	0.194	0.909	0.364
LMX * SRP -> SP	0.002	0.018	0.106	0.017	0.986
LMX * SPP -> SP	-0.059	-0.036	0.095	0.624	0.533